



Zoning Board of Appeals Application for Variance

Warren Farms Landfill Solar Project

Submitted to:

Town of Dalton
Zoning Board of Appeals
462 Main Street
Dalton, MA 01226



Prepared For:

Warren Farms Solar LLC
Citizens Energy Corporation
88 Black Falcon Avenue, Suite 342
Boston, Massachusetts 02210



Prepared By:

TRC
Wannalancit Mills
650 Suffolk Street
Lowell, Massachusetts 01854



March 2023



March 9, 2023

Town of Dalton
Zoning Board of Appeals
462 Main Street
Dalton, MA 01226

**Re: Zoning Board of Appeals Application
Warren Farms Solar, LLC
Proposed Large Scale Solar Facility
Bridle Road, Dalton, Massachusetts
Dalton, Massachusetts**

Dear Planning Board:

On behalf of Warren Farms Solar, LLC (Applicant), TRC Companies (TRC) is pleased to present this Application to the Town of Dalton Zoning Board of Appeals (ZBA) for a variance related to the proposed development of a 2.66-Megawatt (MW) alternating current (AC) ground-mounted solar photovoltaic (PV) system and 2.1 MW battery energy storage system installation project (the Project). The proposed Project is located on the closed and capped private landfill, known as Warren Farms Landfill, at Bridle Road in Dalton, Massachusetts (Site). This Project is currently under Site Plan Review and Special Permit Application by the Town of Dalton Planning Board under the Large Scale Solar Photovoltaic Installations bylaw (§ 350-37.1). During Planning Board review, it was discovered that the proposed 7-foot chain link fence for the Project would require a Variance from the ZBA. Enclosed under this cover is the ZBA Application form and Site Plan set (5 copies) including the required Project information. We are also including the permit application fee.

We understand that the Town of Dalton will perform the required abutter notification and legal notice of the public hearing in the local newspaper. If possible, we would request being heard on the April 4th, 2023 ZBA meeting agenda.

Please contact Max Lamson at 978.770.1060 or mlamson@trccompanies.com if you have any questions or comments.

TRC

A handwritten signature in blue ink, appearing to read "Max Lamson", with a stylized flourish extending to the right.

Max Lamson
Senior Director, Renewable Energy



TOWN OF DALTON

Town Hall
462 Main Street

Dalton, Massachusetts 01226

Telephone (413) 684-6111, Ext. 304

Email: gmcgregor@dalton-ma.gov

ZONING BOARD OF APPEALS APPLICATION

APPLICANT: Warren Farms Solar LLC

ADDRESS: 88 Black Falcon Avenue, Suite 342

Boston, MA 02210

PHONE: 617-951-0418

EMAIL: ebyrne@citizensenergy.com

PROPERTY OWNER: GreySky LLC

ADDRESS: 32 Colman Drive

Wolcott, CT 06716

PHONE: (203) 879-1684

EMAIL: apothccrn@aol.com

FOR ADMINISTRATIVE USE ONLY

PETITION #: _____

DATE FILED WITH TOWN CLERK: _____

HEARING DATE: _____

TIME: _____

LOCATION OF PROPERTY AFFECTED (ADDRESS): Bridle Road (Warren Farms Landfill)

Section(s) of the Dalton Zoning By-law under which you are applying: _____

Type of Application: (Please Circle)

SPECIAL PERMIT

VARIANCE

ADMINISTRATIVE APPEAL

Was project / issue discussed with the Building Inspector? ☒ YES (Date: 3/2/2023) ☐ NO

Description of Project or Changes Proposed (please attach additional pages if needed): _____

Large Solar Photovoltaic Installation - See Attached Narrative and Site Plans

Project requires 7-foot chainlink fence to meet electrical code (reason for variance request)

NOTICE: The applicant shall provide five (5) copies of this completed Application, either typewritten or printed clearly and legibly, and five (5) copies of the plans and specifications as required on page 2, and one digital copy sent to the email above.

In addition, the Applicant shall pay a fee of three hundred and seventy five dollars (\$375.00) for processing the application, notifying abutters and publication of legal notices of the Public Hearing. (Please make check payable to the Town of Dalton)

SIGNATURE: *Andy Byrne* DATE: 3/9/23

(Applicant)

SIGNATURE: *Ainda Hillman* DATE: 08 March 2023

(Owner)

Application and Fee received by: _____

(Agent for the SPGA)

Date: _____

OVER

ZONING BOARD OF APPEALS - SITE PLAN REQUIREMENTS

PLEASE NOTE:

The Zoning Board for issuance of special permits requires a site plan drawn to scale with clearly defined dimensions indicating the location, size and height of the proposed building(s), site improvements, and containing such other information as may be required by the Board.

THE BOARD REQUIRES SITE PLANS TO SHOW THE FOLLOWING:

- ☒ Site plan drawings to scale (*see above*)
- ☒ Lot dimensions (*may be obtained at the Assessor's Office*)
- ☒ Street name(s) abutting the subject property
- ☒ Lot or building street number(s) (*may be obtained at the Assessor's Office*)
- ☒ Zoning District, in which subject property is located
- ☒ Abutting uses
- ☒ Existing and/or proposed buildings **with dimensions**
- ☒ Driveway(s) and Parking spaces
- ☒ Screening or landscaping required for parking (*See Zoning By-law, 350-40: Off Street Parking*)
- ☒ Exterior lighting, if any
- ☒ Signs, if any
- ☒ Other information you believe would be helpful or necessary

Site plan(s) meeting the above requirements shall be filed with the Town Clerk along with the Application to the Board so as to provide this information to other municipal Boards for review, who, by law, may make recommendations on your petition.

Site plan(s) prepared by a Massachusetts Registered Land Surveyor may be required.

Site plans are important and, diligently prepared, may eliminate a zoning issue at a later date, and/or facilitate the transfer of property.

The Board will provide limited guidance to assist you.

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ATTACHMENTS

Attachment A: Permitting Drawing Set

1.0 Project Introduction

On behalf of Warren Farms Solar, LLC (Applicant), TRC Companies (TRC) is pleased to present this Application to the Town of Dalton Zoning Board of Appeals (ZBA) for a variance related to the proposed development of a 2.66-Megawatt (MW) alternating current (AC) ground-mounted solar photovoltaic (PV) system and 2.1 MW battery energy storage system installation project (the Project). The proposed Project is located on the closed and capped private landfill, known as Warren Farms Landfill, at Bridle Road in Dalton, Massachusetts (Site).

This Project is currently under Site Plan Review and Special Permit Application by the Town of Dalton Planning Board under the Large Scale Solar Photovoltaic Installations bylaw (§ 350-37.1). During Planning Board review, it was discovered that the proposed 7-foot chain link fence for the Project would require a Variance from the ZBA.

The proposed Project will be constructed primarily on the existing engineered non-permeable landfill cover system and proposes to use existing access and roads to the extent practical. The proposed chain-link perimeter fence is a standard requirement for commercial scale solar photovoltaic projects and is required under National Electric Code (NEC). The Permitting Drawing Set for the Project is included as Attachment A.

2.0 Existing Conditions

The Warren Farms Landfill is located on a parcel of land to the east of Bridle Road in Dalton, Berkshire County, Massachusetts (Project Site) which is currently owned by Greysky, LLC and has a total area of approximately 31 acres. This parcel is zoned as Residential and Agricultural, Low Density (R-1) Zoning based on the Town of Dalton Zoning Map. The parcel is identified by the Town of Dalton Tax Assessor's Map as Map 106, Lot 55. The dimensions of the landfill parcel are depicted on the Cover Sheet in the Permit Drawing Set provided as **Attachment A**.

The Warren Farms Landfill extends across the parcel's western boundary onto the Town of Dalton Transfer Station property. The Town's Transfer Station property to the west of the Project Site consists of the transfer station, the Town's closed landfill, existing access roads, parking, and stockpile areas. The Warren Farms Landfill does not have existing post-closure uses.

Surrounding land use is primarily residential to the south, undeveloped forested land to the west and north, and a solar development facility to the east. A large sand and gravel pit is located immediately southeast of the Warren Farms Landfill. The Project Site is located within the R-1-Residential / Agricultural District as shown in the Town of Dalton Zoning Map, dated November 13, 2012.

3.0 Project Description

3.1 Photovoltaic and Battery System Installation

The proposed 2.66-MW AC solar array will be constructed on the Warren Farms Landfill which is a closed and capped, privately-owned landfill. The solar array is designed to be protective of the existing landfill cover system with a “non-penetrating” foundation system. The array will consist of a fixed-tilt ground-mounted racking system supported by concrete-filled ballast tub supports placed above the topsoil level of the cover system. The landfill solar project will be developed under a Post-Closure Use Permit (PCUP) from the Massachusetts Department of Environmental Protection (MassDEP) Solid Waste Division.

The solar array layout is located on areas of the landfill that have moderate slopes (<15%). Leveling stone will be added beneath the ballasts as-needed in sloped areas to meet the tolerances of the proposed racking system. Module strings contained within the racks will be conducted by Direct Current (DC) wiring which are coupled at combiner boxes and eventually carried throughout the array via aboveground conduit in cable trays to the pair of equipment pads centrally located on the southern portion of the landfill. The wiring is connected to the battery facility and inverter unit followed by the transformer co-located on an adjacent equipment pad. Medium voltage AC cable will leave the equipment pads and travel via aboveground conduit in cable trays within the fenced-in facility and transition to aboveground rigid metal conduit outside the fenced-in facility to the overhead electric lines outside the limits of waste to the point of interconnection located on the east side of Bridle Road. The cable, AC and DC, located within the limit of waste will be aboveground and placed on protective cable trays or in aboveground rigid metal conduit. The use of poles or conduit penetrating the landfill cover will not be used.

The solar array plan layout and details regarding associated components are shown in the permitting drawing set prepared by TRC, included as **Attachment A**, and are discussed in the following sections.

3.2 Electrical Equipment Specifications

The Project will include an inverter that will convert the DC electricity from the batteries to AC electricity to then be transmitted to the local distribution circuit. The inverter also provides ground fault protection and system statistics, including voltage and current on AC and DC circuits, energy production, and maximum power point tracking. The Project also includes an electric transformer that regulates AC voltage before the electricity leaves the site and enters the grid. The inverter and transformer are mounted on concrete foundations and will be within the secure fenced portion of the Project.

The DC-coupled battery storage containers will have a maximum energy capacity of 2.1 MW. The chemistry within the battery storage containers will be Lithium Iron Phosphate (LFP) cells, which is a common type of Lithium-Ion battery chemistry. The chemicals within the battery cells are typically contained in a sealed Aluminum-plastic film. Risk of exposure occurs only if the battery

is mechanically or electrically abused. The batteries are not classified as hazardous under the Classification, Labelling and Packaging (CLP) Regulation. Under conditions of normal use, respiratory protection is not required for working around the battery cells. When promptly used or disposed, the battery does not present an environmental hazard. Battery containers typically have an internal fire suppression system and automatic shutoff protections. The solar array, electrical equipment, and battery layout and details are shown in the permitting drawing set prepared by TRC, included as **Attachment A**.

4.0 Fence Variance

According to the Town of Dalton Bylaws, Article VII, Supplementary District Regulations, § 350-26 *Fences*; fences or walls along the rear or side lot lines shall not exceed six feet in height and a 7-foot chain-link perimeter fence is not allowable as a permanent installation. Given the need for a 7-foot chain-link fence to meet security and electrical code requirements for the solar and battery project, the Project applicant is requesting a variance to the existing allowable fence standards within the R-1-Residential / Agricultural District.

Attachment A: Permitting Plan Set

WARREN FARMS SOLAR LLC

PROPOSED 2.66 MW-AC SOLAR ARRAY & BESS PROJECT

DALTON, BERKSHIRE COUNTY, MASSACHUSETTS

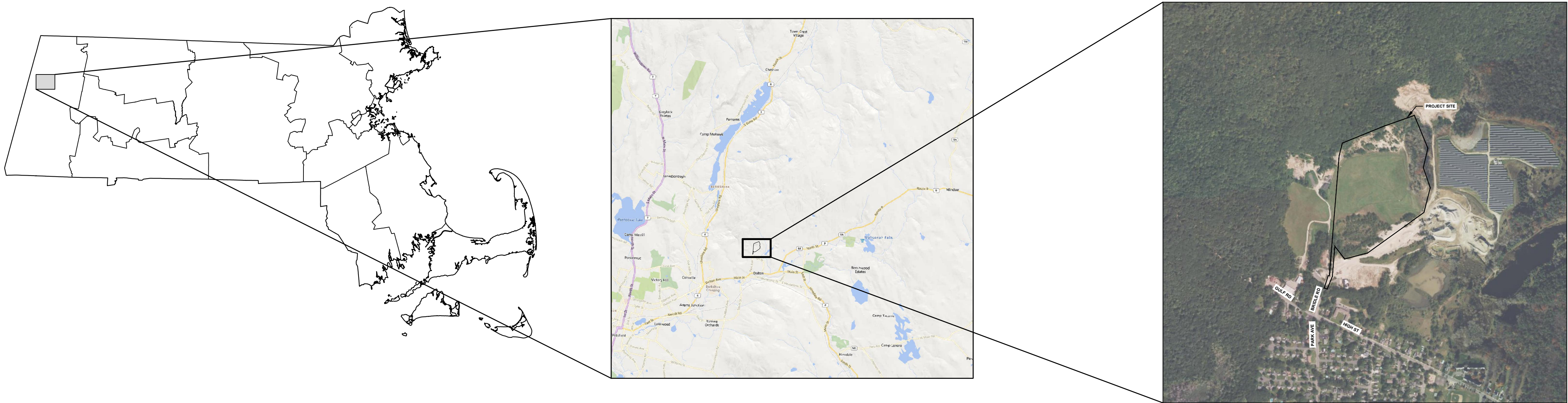
PREPARED FOR: WARREN FARMS SOLAR LLC
88 BLACK FALCON AVENUE, SUITE 342
BOSTON, MASSACHUSETTS 02210

PREPARED BY: TRC
LOWELL, MA 01854

DATE: JANUARY 2023

APPROVED: TOWN OF DALTON PLANNING BOARD		
SIGNATURE	DATE	APPROVED
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>
		<input type="checkbox"/>

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
G1.00	CIVIL COVER SHEET
G1.01	GENERAL NOTES & LEGEND
G1.02	EROSION CONTROL NOTES & DETAILS
C1.00	EXISTING CONDITIONS PLAN
C1.01	SITE PREPARATION PLAN - SOUTH
C1.02	SITE PREPARATION PLAN - NORTH
C2.00	OVERALL SITE LAYOUT PLAN
C2.01	SITE GRADING & DRAINAGE PLAN - SOUTH
C2.02	SITE GRADING & DRAINAGE PLAN - NORTH
C4.00	CIVIL CONSTRUCTION DETAILS
C5.00	PRELIMINARY ELECTRICAL DETAILS



MASSACHUSETTS

DALTON

SITE LOCATOR

NOTE: THESE PLANS ARE ACCOMPANIED BY PERMIT APPLICATIONS OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER. THESE DOCUMENTS ARE INTENDED TO BE USED FOR REGULATORY PURPOSES ONLY.

NOT FOR CONSTRUCTION

PERMITTING

PERMITTING
NOT FOR CONSTRUCTION

650 Suffolk Street
Suite 200
Lowell, MA 01854
Phone: 978.970.5600

1. THE PROJECT HORIZONTAL COORDINATES SYSTEM IS BASED ON NAD83 MASSACHUSETTS STATE PLANE (US SURVEY FEET, MAINLAND ZONE, MA83F). ELEVATIONS ARE BASED ON NAVD88 (US SURVEY FEET).
2. PROJECT PROPERTY BOUNDARIES AND SITE TOPOGRAPHIC INFORMATION ARE BASED UPON THE ON-GROUND FIELD SURVEY COMPLETED BY ALPHA SURVEYING AND ENGINEERING, INC. IN MARCH 2014 AS PROVIDED IN A PLAN ENTITLED "EXISTING CONDITION PLAN, 98 BRIDLE ROAD, WARREN LANDFILL, DALTON, MASSACHUSETTS".
3. UTILITY INFORMATION DEPICTED IS COMPILED USING PHYSICAL SURFACE EVIDENCE LOCATED IN THE FIELD IN CONJUNCTION WITH THE "MASSACHUSETTS DEPARTMENT OF TRANSPORTATION AND HIGHWAYS" AND MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. THEREFORE ALL UTILITY LOCATIONS SHOULD BE CONSIDERED APPROXIMATE AND BE VERIFIED BY THE CONTRACTOR. DIGSAFE SHALL BE NOTIFIED A MINIMUM OF 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION. FULL UTILITY COORDINATION WITH NON-MEMBER UTILITIES AND USE OF GROUND-PENETRATING RADAR TO LOCATE UTILITIES SHOULD BE PERFORMED AS NECESSARY.
4. LIMIT OF LANDFILL CAP IS BASED ON RECORD INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE. LOCATIONS OF MONITORING POINTS, VESICATING POINTS, AND OTHER MONITORING DEVICES ARE SHOWN HEREIN AND SHOULD BE CONSIDERED APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND LOCATION OF STRUCTURES PRIOR TO INITIATING CONSTRUCTION. ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY SITE CONDITIONS THAT DIFFER FROM THOSE SHOWN HEREIN. LANDFILL SITE INFRASTRUCTURE AND MONITORING LOCATIONS SHOULD BE PROTECTED THROUGHOUT CONSTRUCTION.
5. NATURAL RESOURCE AND ZONING INFORMATION ARE FROM STATE OF MASSACHUSETTS GIS DATA.

	SURVEYED PROPERTY BOUNDARY
	APPROXIMATE ABUTTING PROPERTY BOUNDARY
	BENCHMARK, FOUND
	IRON PIPE, FOUND
	EXISTING GAS VENT
	EXISTING DRAINAGE MANHOLE
	EXISTING EDGE OF GRAVEL
	EXISTING FENCE
	EXISTING OVERHEAD ELECTRIC & POLES
	EXISTING STONE WALL
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EXISTING SPOT ELEVATION
	EXISTING TREES AND/OR BRUSH
	DEP MAPPED WETLAND
	DEP MAPPED STREAM
	100' RESOURCE BUFFER
	200' RIVERFRONT AREA
	NHESP PRIORITY HABITAT
	AQUIFER PROTECTION DISTRICT
	PROPOSED GRAVEL ACCESS
	PROPOSED RIP RAP
	PROPOSED MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED TREE LINE/CLEARING LIMITS
	PROPOSED CHAIN LINK FENCE
	PROPOSED OVERHEAD ELECTRIC LINE AND POLES
	PROPOSED MV ABOVEGROUND ELECTRIC LINE
	PROPOSED LV ABOVEGROUND ELECTRIC LINE
	PROPOSED FIXED-TILT ARRAY RACKING WITH BAL
	LIMITS OF DISTURBANCE
	SEDIMENT BARRIER

ZONING DISTRICTS SUMMARY TABLE									
GENERAL ZONING DISTRICT					OVERLAY ZONING DISTRICTS				
RESIDENTIAL / AGRICULTURAL DISTRICT (R-1)					AQUIFER PROTECTION DISTRICT				
DIMENSIONAL STANDARDS									
DISTRICT	MIN. FRONT YARD SETBACK		MIN. SIDE YARD SETBACK		MIN. REAR YARD SETBACK		BUILDING MAX. HEIGHT		
	REQUIRED	PROVIDED	REQUIRED	PROVIDED	REQUIRED	PROVIDED	REQUIRED	PROVIDED	
RESIDENTIAL / AGRICULTURAL DISTRICT (R-1)	35'	N/A	25'	25'	30'	160'	15'	<15'	

PARCEL ID	PARCEL ADDRESS	PARCEL AREA (AC.)	OWNER NAME	OWNER ADDRESS	TOWN	STATE	ZIP CODE
MAP 106, LOT 55	BRIDLE ROAD	31	GREYSKY, LLC	32 COLMAN DRIVE	WOLCOTT	CT	06716

SPECIFICS OF HOW WORK IS TO BE COMPLETED SHALL ALSO BE BASED ON ENVIRONMENTAL CONSIDERATIONS ASSOCIATED WITH SEASONAL CHANGES. THE FOLLOWING DATES ARE PROVIDED TO ESTABLISH A GENERAL GUIDELINE FOR THESE SEASONS:

- WINTER:	NOVEMBER 1 TO MARCH 19
- MUD SEASON:	MARCH 20 TO APRIL 30
- SPRING:	MAY 1 TO JUNE 21
- SUMMER:	JUNE 22 TO SEPTEMBER 21
- FALL:	SEPTEMBER 22 TO OCTOBER 31

ON SLOPES GREATER THAN 3 PERCENT, STRAW MULCH WILL BE FIRMLY ANCHORED INTO THE SOIL UTILIZING ONE OF THE FOLLOWING METHODS:

- CRIMPING WITH A STRAIGHT OR NOTCHED MULCH CRIMPING TOOL (FARM DISCS WILL NOT BE ALLOWED);
- TRACK WALKING WITH DEEP-GEELED EQUIPMENT OPERATING UP AND DOWN THE SLOPE (MULCH CRIMPED PERPENDICULAR TO THE SLOPE) ON SLOPES <25 PERCENT;
- APPLICATION OF MULCH NETTING;
- APPLICATION OF 1000 LB./ACRE OF WOOD FIBER MULCH OVER STRAWHAY MULCH; AND
- COMMERCIALLY AVAILABLE TACKIFIERS (EXCEPT WITHIN 100 FEET OF WATERBODIES OR WETLANDS).

CONTRACTOR SHALL MAINTAIN THE PROJECT SITE IN ACCORDANCE WITH THE FOLLOWING PERFORMANCE STANDARDS

SEED MIX SPECIFICATIONS		
SEED MIX NAME	SEED MIX COMPONENTS	LB./ACRE ¹
TEMPORARY SEED MIX	ANNUAL RYEGRASS	40
PERMANENT SEED MIX	MASSEDO SEED MIX NO. 785 451 PART SHADE ROADSIDE MIX (OR APPROVED EQUAL)	30
SUPPLEMENTAL WINTER SEED MIX ²	WINTER RYEGRASS	120

NOTES:
 1. INCREASE SEEDING RATES 10% WHEN HYDROSEEDING
 2. WINTER RYE WILL BE ADDED TO PERMANENT SEED MIX AT A RATE OF 120 LB./ACRE BETWEEN AUGUST 15 AND OCTOBER 15

CONDITION	TIMING	MULCH TYPE	APPLICATION RATES
TEMPORARY			
INACTIVE AREAS	IF NO ACTIVITY IN EXPOSED AREAS FOR 7 DAYS, OR PRIOR TO A STORM EVENT	STRAW MULCH OR WOOD FIBER MULCH OR EROSION CONTROL MIX	1000 LB /ACRE 1000 LB /ACRE 2" THICK OVER AREA
ALL DISTURBED AREAS OF THE CONSTRUCTION WORKSPACE	APPLY MULCH TO ALL EXPOSED AREAS IF NO ACTIVITY OCCURS WITHIN 30 DAYS. APPLY MULCH AND TEMPORARY SEEDING SOONER WHEN IT CAN BE ANTICIPATED THAT ACTIVITY IS NOT GOING TO OCCUR WITHIN 30 DAYS.	STRAW MULCH OR WOOD FIBER MULCH	1000 LB /ACRE
ALL WORK AREAS EXPOSED ARE TO BE MULCHED DAILY EACH TIME SOIL IS DISTURBED ⁷	NOVEMBER 1 - APRIL 15	STRAW MULCH OR WOOD FIBER MULCH	1000 LB /ACRE
PERMANENT			
ON ALL EXPOSED AREAS AFTER SEEDING TO STABILIZE THE SOIL SURFACE	PERMANENT GRASS AND/OR LEGUME SEEDING COVERED BY STRAW MULCH ON ALL AREAS THAT HAVE BEEN RESTORED TO FINAL GRADE. THIS DOES NOT APPLY TO AREAS STABILIZED BY OTHER MEANS SUCH AS JUTE MATTING OR PERMANENT EROSION CONTROL MIX.	CRIMPED STRAW MULCH OR PAPER MULCH OR WOOD FIBER MULCH	1000 LB /ACRE

CONDITION	TIMING ²	SEED MIX
TEMPORARY SEEDING ³	TEMPORARY SEED BETWEEN APRIL 1 AND JUNE 30 OR SEPTEMBER 1 AND SEPTEMBER 30. DISTURBED AREAS OR SOIL STOCKPILES WILL BE SEEDED IMMEDIATELY IF FURTHER DISTURBANCE IS NOT EXPECTED FOR 30 DAYS OR MORE.	TEMPORARY SEED MIX
PERMANENT SEEDING ^{3,4}	SEED BETWEEN APRIL 1 AND MAY 31 OR AUGUST 1 AND SEPTEMBER 10	PERMANENT SEED MIX
UPLAND PORTIONS OF THE CONSTRUCTION AREA	DISTURBED AREA WILL BE SEEDED WITHIN 7 DAYS OF FINAL GRADING.	PERMANENT SEED MIX
SLOPES > 3:1	DISTURBED AREA WILL BE SEEDED IMMEDIATELY AFTER SEEDBED PREPARATION.	PERMANENT SEED MIX
WINTER DORMANT SEEDING	DORMANT SEED BETWEEN NOVEMBER 1 AND DECEMBER 15 ONLY. NO SEEDING WILL OCCUR IF SNOW DEPTHS EXCEED 1 INCH.	PERMANENT SEED MIX PLUS SUPPLEMENTAL WINTER SEED MIX

NOTES:
1. WEATHER CONDITIONS PERMITTING.
2. AREAS THAT DO NOT SUCCESSFULLY REVEGETATE WITHIN APPROPRIATE PERIOD OF TIME WILL BE RESEED AS NECESSARY.
3. LOESEN COMPACTED SOIL TO A MINIMUM DEPTH OF 2 TO 4 INCHES.
4. TOP DRESS WITH 4 TO 6 INCHES LOAM, AS NEEDED.

NOT FOR CONSTRUCTION



SEAL



PROFESSIONAL ENGINEER:

THOMAS N. DANIELS, JR.

DATE _____

JANUARY 12, 2023

1	TRC	01/12/2023	ISSUED FOR MADEP SW POST-CLOSURE USE PERMIT
0	TRC	01/05/2023	ISSUED FOR PERMITTING
NO.	BY	DATE	REVISION

PROJECT: CITIZENS ENERGY CORP
WARREN FARMS SOLAR LLC
PROPOSED 2.66 MW-AC SOLAR ARRAY & BESS PROJ
DALTON, BERKSHIRE COUNTY, MASSACHUSETTS

GENERAL NOTES & LEGEND

DRAWN BY:	TRC	PROJ. NO.:	G1.01
CHECKED BY:	TND		
APPROVED BY:	TND		
DATE:	JANUARY 2023		



650 Suffolk Street
Suite 200
Lowell, MA 01854
Phone: 978.970.5600

FILE NO.

421646 - G SHEETS.c

EROSION CONTROL NOTES

PROJECT DESCRIPTION

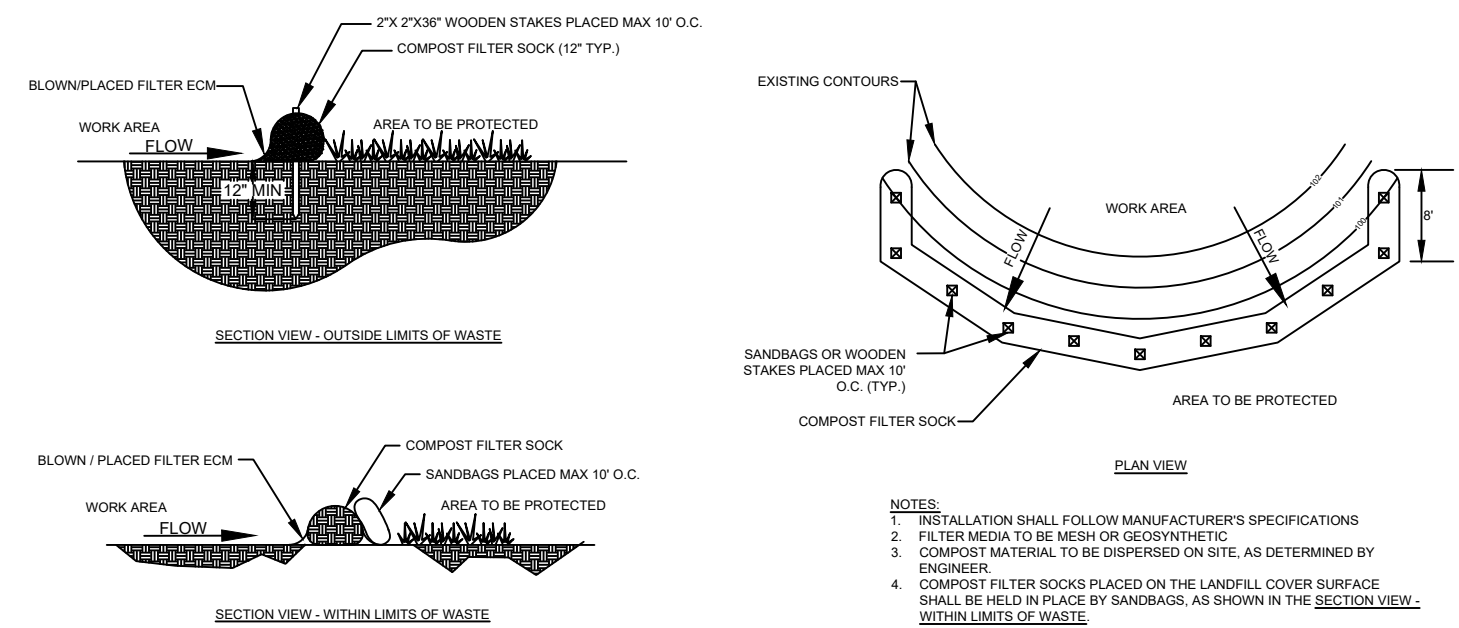
THE PROJECT INVOLVES THE CONSTRUCTION OF A GROUND-MOUNTED PHOTOVOLTAIC SOLAR MODULE SYSTEM AND ALL RELATED ACCESS ROADS, UTILITIES, SITE PREPARATION, CLEARING & GRUBBING, EROSION & SEDIMENTATION CONTROL MEASURES, AND GRADING. EROSION AND SEDIMENTATION CONTROL BEST MANAGEMENT PRACTICES WITH GROUND PENETRATING FEATURES ARE NOT PERMITTED FOR USE WITHIN LIMITS OF LANDFILL CAP.

CONSTRUCTION SEQUENCE

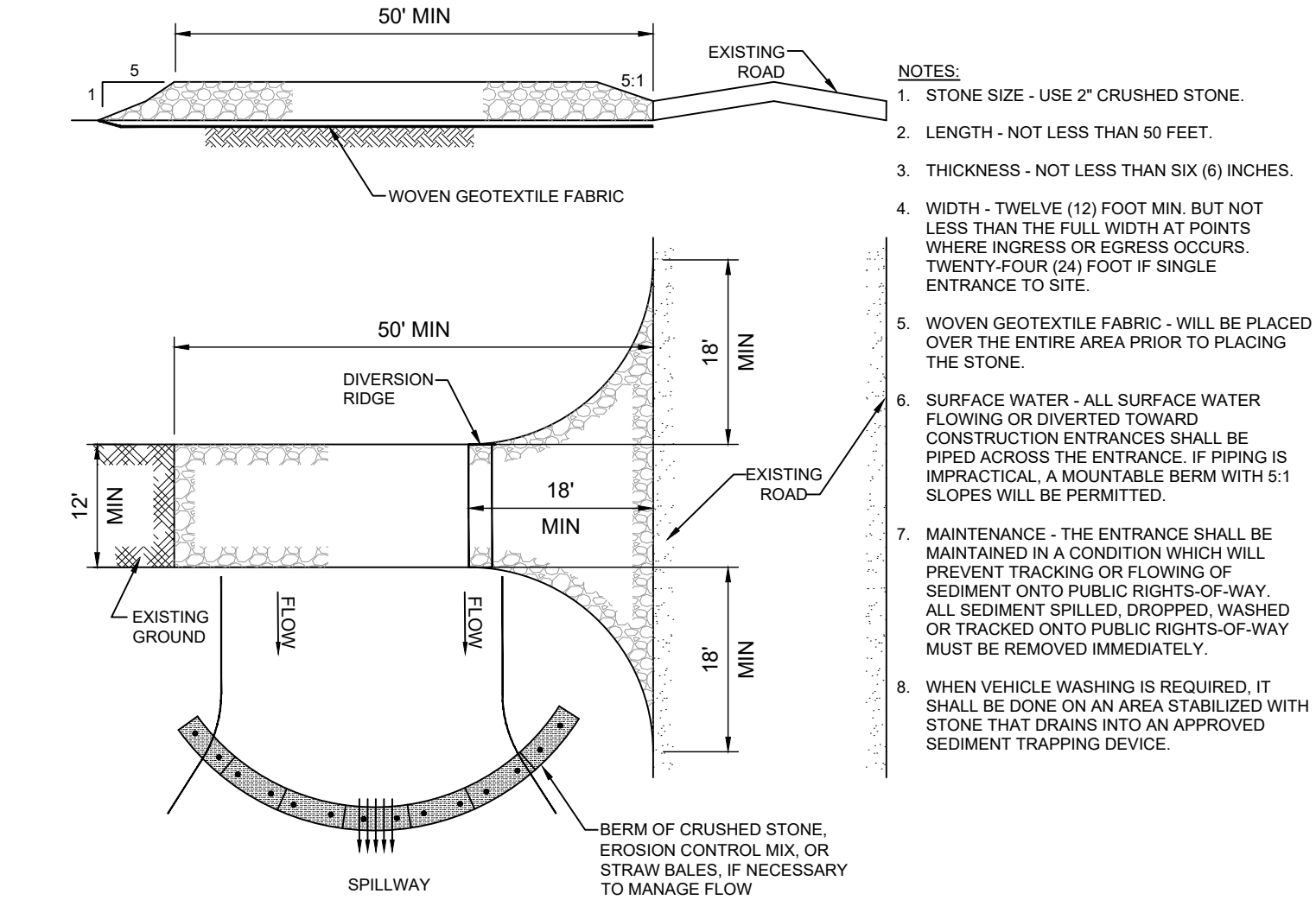
1. ESTABLISH CONSTRUCTION WORKSPACE LIMITS; IDENTIFY AND MARK SENSITIVE RECEPTORS INCLUDING NATURAL RESOURCES AND DOWNGRADIENT DRAINAGE INFRASTRUCTURE.
2. INSTALLATION OF ALL EROSION AND SEDIMENT CONTROL MEASURES AND ASSOCIATED WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE "MASSACHUSETTS EROSION AND SEDIMENTATION CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS".
3. PRIOR TO USAGE, CONSTRUCT AND STABILIZE THE CONSTRUCTION ENTRANCE IN THE LOCATION INDICATED ON THE SITE GRADING AND DRAINAGE PLAN SHEET. AT A MINIMUM, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED AT EACH POINT OF ACCESS/EGRESS FROM THE PROJECT AREA TO EXISTING ACCESS ROADS AT THE PROJECT SITE.
4. CLEAR BRUSH, SMALL TREES, AND MOW LANDFILL COVER WITHIN PROJECT AREA; GRUBBING SHALL NOT BE COMPLETED UNTIL JUST PRIOR TO PRELIMINARY GRADING AND ESTABLISHMENT AND STABILIZATION OF TEMPORARY OR PERMANENT DRAINAGE CONVEYANCES.
5. INSTALL AND MAINTAIN PERIMETER SEDIMENT BARRIERS SUCH AS SILT FENCING AND OTHER APPROVED EROSION CONTROL BARRIERS ALONG THE DOWN-UP LIMIT OF DISTURBANCE AS SHOWN ON THE DRAWINGS. SEDIMENT BARRIER LOCATIONS MAY BE ADJUSTED IN THE FIELD BASED ON ACTUAL SITE CONDITIONS AS DEEMED NECESSARY TO ENSURE PROPER FUNCTION. WHERE SILT FENCE CANNOT BE TOED-IN PROPERLY DUE TO TREE ROOTS, ROCKS, OR FROZEN GROUND, HAY BALES OR AN EROSION CONTROL MIX BERM MAY BE SUBSTITUTED. PERIMETER SEDIMENT BARRIERS SHALL BE INSTALLED AS SOON AS POSSIBLE BUT MAY FOLLOW INITIAL SITE PREPARATION. EROSION OR SEDIMENTATION ISSUES DEVELOPING DURING INITIAL SITE PREPARATION SHALL BE TEMPORARILY STABILIZED AS NECESSARY. ANY EROSION AND SEDIMENT CONTROL MEASURES PLACED ON THE LANDFILL COVER SURFACE SHALL BE NON-GROUND PENETRATING, SUCH AS COMPOST FILTER SOCKS HELD IN PLACE BY SANDBAGS.
6. CONSTRUCT TEMPORARY ACCESS ROADS AS NEEDED TO ROUTE TRAFFIC FROM PROPOSED ACCESS ROAD LOCATION ONTO LANDFILL. ONLY LOW GROUND PRESSURE EQUIPMENT MAY BE USED DIRECTLY ON LANDFILL COVER. TEMPORARY ACCESS ROAD SHALL BE REMOVED AS SOLAR ARRAY CONSTRUCTION PROGRESSES FROM FAR EXTENTS OF LANDFILL LIMITS TO CENTER. UNDERLYING AND SURROUNDING LANDFILL COVER SHALL BE RESTORED AS NEEDED.
7. STABILIZE PERMANENT ACCESS ROAD SURFACES, PARKING AREAS, AND EQUIPMENT STORAGE AND LAYDOWN AREAS WITH MATTING, CRUSHED STONE, OR GRAVEL SUBBASE AS NECESSARY TO MINIMIZE RUTTING AND AVOID PONDING OF STORMWATER.
8. CONCURRENT WITH INITIATION OF SITE GRADING, CONSTRUCT AND STABILIZE TEMPORARY DRAINAGE SWALES, DIVERSION BERMS, CHECK DAMS, AND CULVERTS WITH TEMPORARY INLET AND OUTLET PROTECTION TO MINIMIZE SEDIMENT IN SITE RUNOFF DURING CONSTRUCTION. DEWATERING SHALL BE IN ACCORDANCE WITH THE DEWATERING NOTES.
9. INSTALL PROPERLY SPACED STONE CHECK DAMS IN ANY SECTION OF DITCH WITHIN 24-HOURS OF FORMING, SHAPING, OR ROUGH GRADING THAT SECTION OF DITCH.
10. MINIMIZE THE AMOUNT OF DISTURBANCE AT ANY ONE TIME BY STAGING CONSTRUCTION AS MUCH AS PRACTICAL FOR EFFICIENT CONSTRUCTION OF THE FACILITY. NATURAL VEGETATIVE BUFFERS SHOULD BE LEFT IN PLACE WHERE FEASIBLE TO AID IN SEDIMENT RETENTION AND REDUCE THE POTENTIAL FOR EROSION. OPEN AREA SHALL BE LIMITED TO 5 ACRES OR NO MORE THAN CAN BE MULCHED IN A SINGLE DAY, WHICHEVER IS LESS.
11. STABILIZE ANY DISTURBED SLOPES GREATER THAN 3H:1V AND ANY SECTION OF NEWLY CONSTRUCTED DITCH USING ANCHORED EROSION CONTROL BLANKETS OR OTHER APPROVED MULCHING WITHIN 24-HOURS. ALL VEGETATED DITCHES THAT HAVE NOT BEEN STABILIZED BY NOVEMBER 1, OR WILL BE WORKED ON BETWEEN NOVEMBER 1 AND APRIL 15, MUST BE STABILIZED WITH STONE LINING BACKED BY GRAVEL BED OR GEOTEXTILE AS SPECIFIED BY THE ENGINEER.
12. DUST CONTROL METHODS SHALL BE EMPLOYED AFTER GRADING AND PRIOR TO FINAL STABILIZATION TO PREVENT THE BLOWING AND MOVEMENT OF NUISANCE DUST THROUGH THE APPLICATION OF WATER. CALCIUM CHLORIDE SHALL NOT BE USED.
13. APPLY TEMPORARY SEED AND MULCH TO EXPOSED AREAS WHERE ACTIVITY IS NOT ANTICIPATED FOR 30-DAYS. TEMPORARILY MULCH ANY EXPOSED AREAS IF NO ACTIVITY FOR 7 DAYS, OR PRIOR TO A STORM EVENT.
14. REMOVE EXCESS SPOILS FROM THE SITE THAT WILL NOT BE USED FOR THE FINAL DESIGN AND STABILIZATION. STOCKPILED SOILS THAT REMAIN IN PLACE FOR 48-HOURS OR MORE SHALL BE CONTAINED WITH SEDIMENT BARRIERS. THE SEDIMENT BARRIERS SHALL BE REINFORCED TO HANDLE A SIGNIFICANT RAIN EVENT AND THE POTENTIAL SLURPING OF THE PILE. BETWEEN APRIL 15 AND OCTOBER 1, APPLY TEMPORARY SEED AND MULCH TO A STOCKPILE THAT IS NOT ANTICIPATED TO BE DISTURBED WITHIN 30-DAYS. APPLY ANCHORED MULCH DAILY AND/OR AS NEEDED DURING WINTER CONSTRUCTION.
15. INSPECT AND REPAIR EROSION CONTROL MEASURES DAILY IN AREAS OF ACTIVE CONSTRUCTION; OTHERWISE WEEKLY AND AFTER A RAINFALL EVENT OF 0.5-INCHES OR GREATER WITHIN A 24-HOUR PERIOD. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES 1/3 OF THE HEIGHT OF THE BARRIER.
16. MONITOR PUBLIC ROADS FOR SIGNS OF TRACKING OR SPILLING OF SOIL, MATERIAL AND CLEAN-UP AS NECESSARY.
17. COMPLETE FINAL GRADING AND STABILIZATION OF EARTHEN STRUCTURES SUCH AS DIVERSION BERMS, LEVEL SPREADERS, AND SWALES THAT WILL CONTROL POST-CONSTRUCTION RUNOFF.
18. FINISH GRADE AND REPLACE TOPSOIL OR LOAM IN DISTURBED AREAS. SEED AND MULCH DISTURBED AREAS WITHIN 7 DAYS OF FINAL GRADING. BETWEEN NOVEMBER 1 AND APRIL 15, STABILIZE AREAS THAT ARE FINAL GRADED AT THE END OF EACH DAY.
19. MAINTAIN ALL TEMPORARY EROSION CONTROLS AND SEDIMENT BARRIERS UNTIL VEGETATION HAS BEEN ESTABLISHED OVER 90% OF THE AREA TO BE REVEGETATED. RESEED SPARSLEY VEGETATED AREAS AS NECESSARY.
20. REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES ONCE THE SITE IS PERMANENTLY STABILIZED.

DEWATERING NOTES

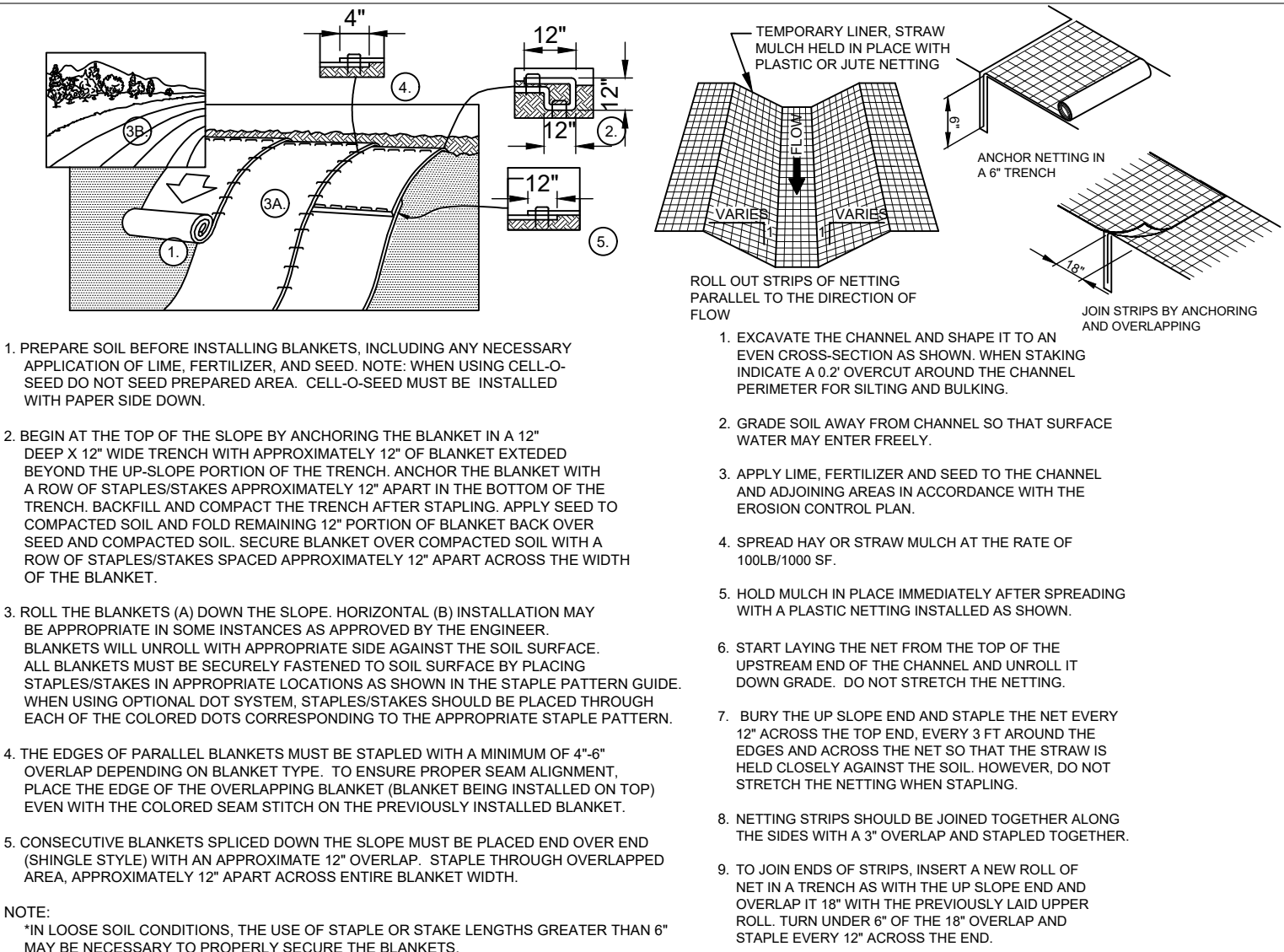
1. THE CONTRACTOR SHALL INSTALL, MAINTAIN, AND OPERATE ALL CHANNELS, PUMPS, AND OTHER TEMPORARY DIVERSION AND PROTECTIVE WORKS NEEDED TO DIVERT STREAM FLOW AND OTHER SURFACE WATER THROUGH OR AROUND THE CONSTRUCTION SITE. CONTROL OF SURFACE WATER SHALL BE CONTINUOUS DURING THE PERIOD THAT DAMAGE TO CONSTRUCTION WORK COULD OCCUR.
2. OPEN EXCAVATIONS SHALL BE DEWATERED AND KEPT FREE OF STANDING WATER AND MUDDY CONDITIONS AS NECESSARY FOR THE PROPER EXECUTION OF THE WORK. THE CONTRACTOR SHALL FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL DRAINS, PUMPS AND ALL OTHER EQUIPMENT REQUIRED TO PROPERLY DEWATER THE SITE. DEWATERING SYSTEMS THAT CAUSE A LOSS OF SOIL FINES FROM THE FOUNDATION AREAS WILL NOT BE PERMITTED.
3. INSTALL DIVERSION DITCHES OR BERMS IF NECESSARY TO MINIMIZE THE AMOUNT OF CLEAN STORMWATER RUNOFF ALLOWED INTO THE EXCAVATION AREA.
4. REMOVAL OF WATER FROM THE CONSTRUCTION SITE SHALL BE ACCOMPLISHED SO THAT EROSION AND TRANSPORTATION OF SEDIMENT AND OTHER POLLUTANTS ARE MINIMIZED.
5. DISCHARGE DEWATERING EFFLUENT TO AREAS AS INDICATED ON THE SITE GRADING PLAN. DISCHARGE SHALL BE MANAGED TO ENSURE SHEET FLOW.
6. DEWATERING IN PERIODS OF INTENSE HEAVY RAIN OR WHEN THE INFILTRATIVE CAPACITY OF THE SOIL IS EXCEEDED, SHALL BE AVOIDED TO THE MAXIMUM EXTENT PRACTICABLE.
7. FLOW TO THE SEDIMENT REMOVAL STRUCTURE MAY NOT EXCEED THE STRUCTURE'S CAPACITY TO SETTLE AND FILTER FLOW OR THE STRUCTURE'S VOLUME CAPACITY.
8. WHEN TEMPORARY WORKS ARE NO LONGER NEEDED, THE CONTRACTOR SHALL REMOVE AND RETURN THE AREA TO A CONDITION SIMILAR TO THAT WHICH EXISTED BEFORE CONSTRUCTION. AREAS WHERE TEMPORARY WORKS WERE LOCATED SHALL BE GRADED FOR SIGHTLY APPEARANCE WITH NO OBSTRUCTION TO NATURAL SURFACE WATER FLOWS OR THE PROPER FUNCTIONING AND ACCESS TO THE WORKS OF IMPROVEMENTS INSTALLED. THE CONTRACTOR SHALL EXERCISE EXTREME CARE DURING THE REMOVAL STAGES TO MINIMIZE THE LOSS OF SOIL SEDIMENT AND DEBRIS THAT WAS COLLECTED DURING CONSTRUCTION.



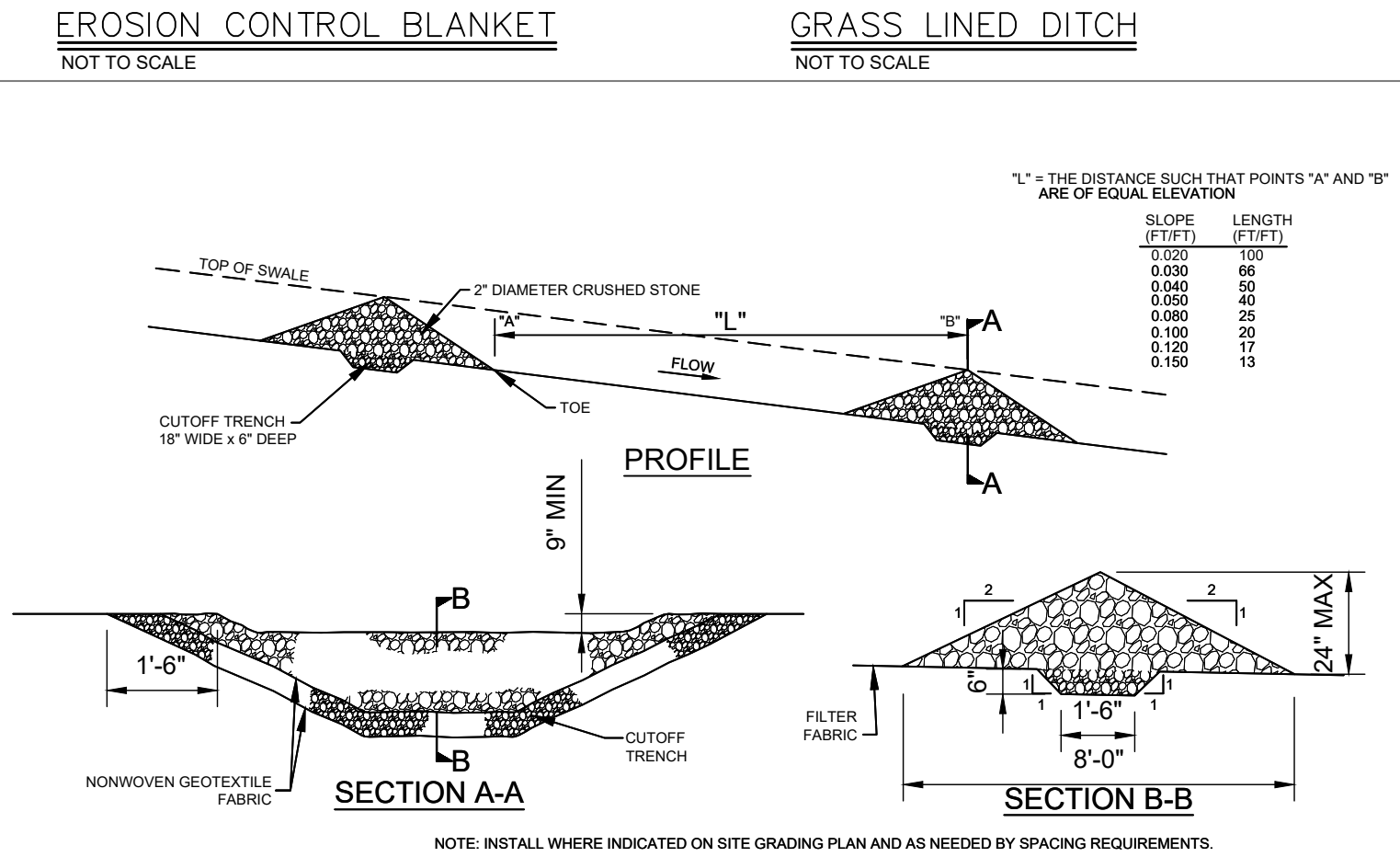
COMPOST FILTER SOCK
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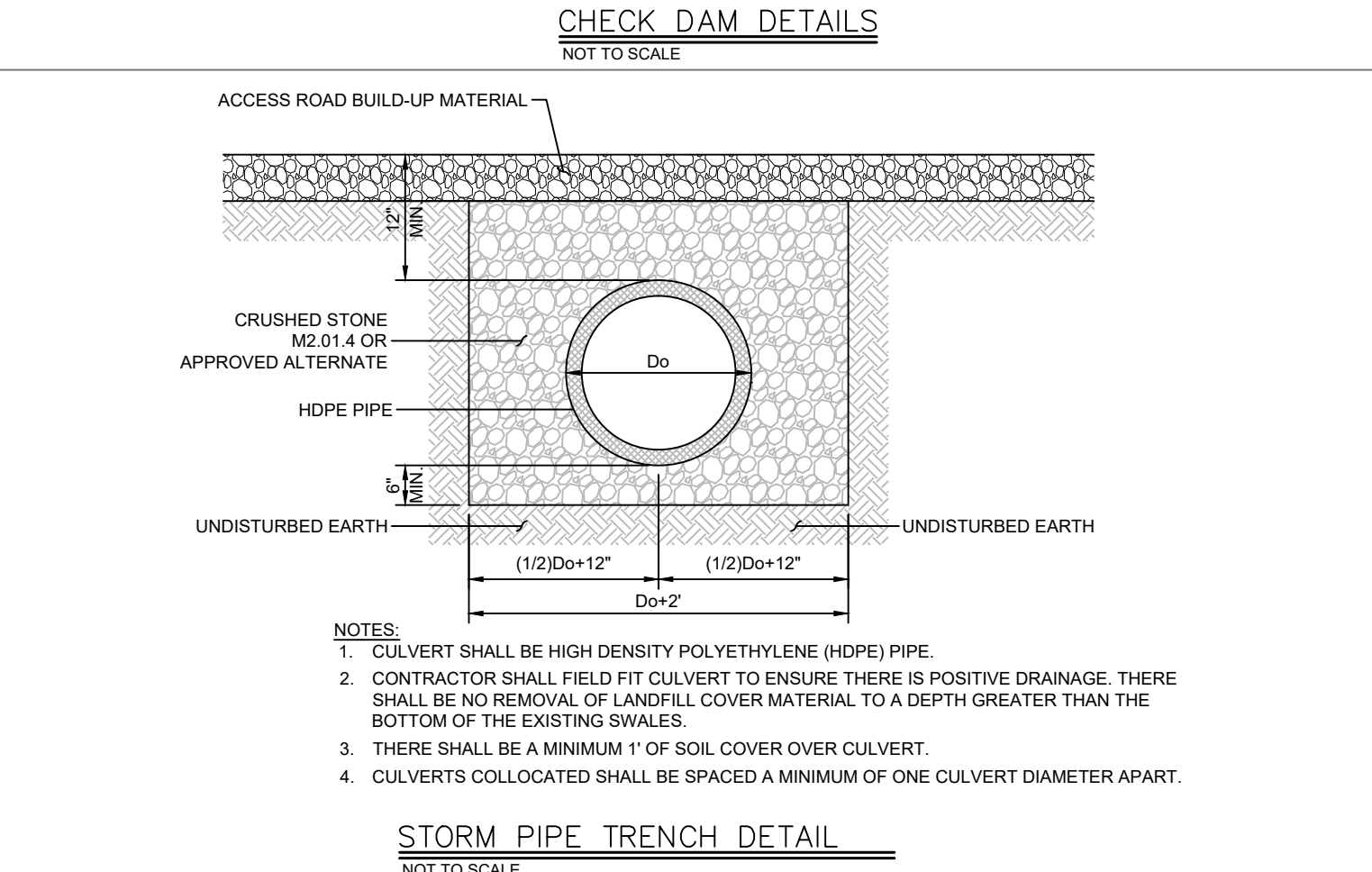
STABILIZED CONSTRUCTION ENTRANCE
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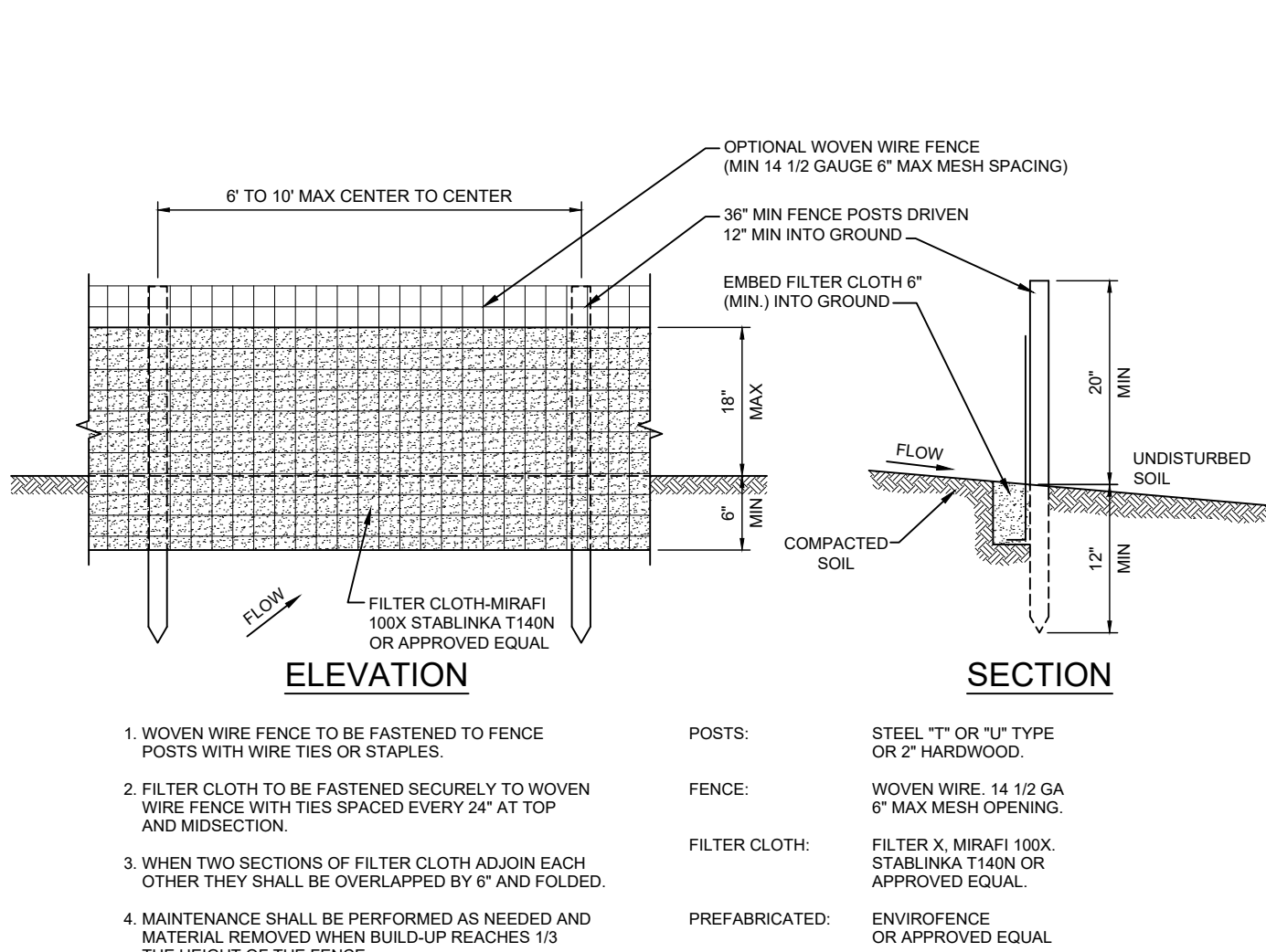
EROSION CONTROL BLANKET
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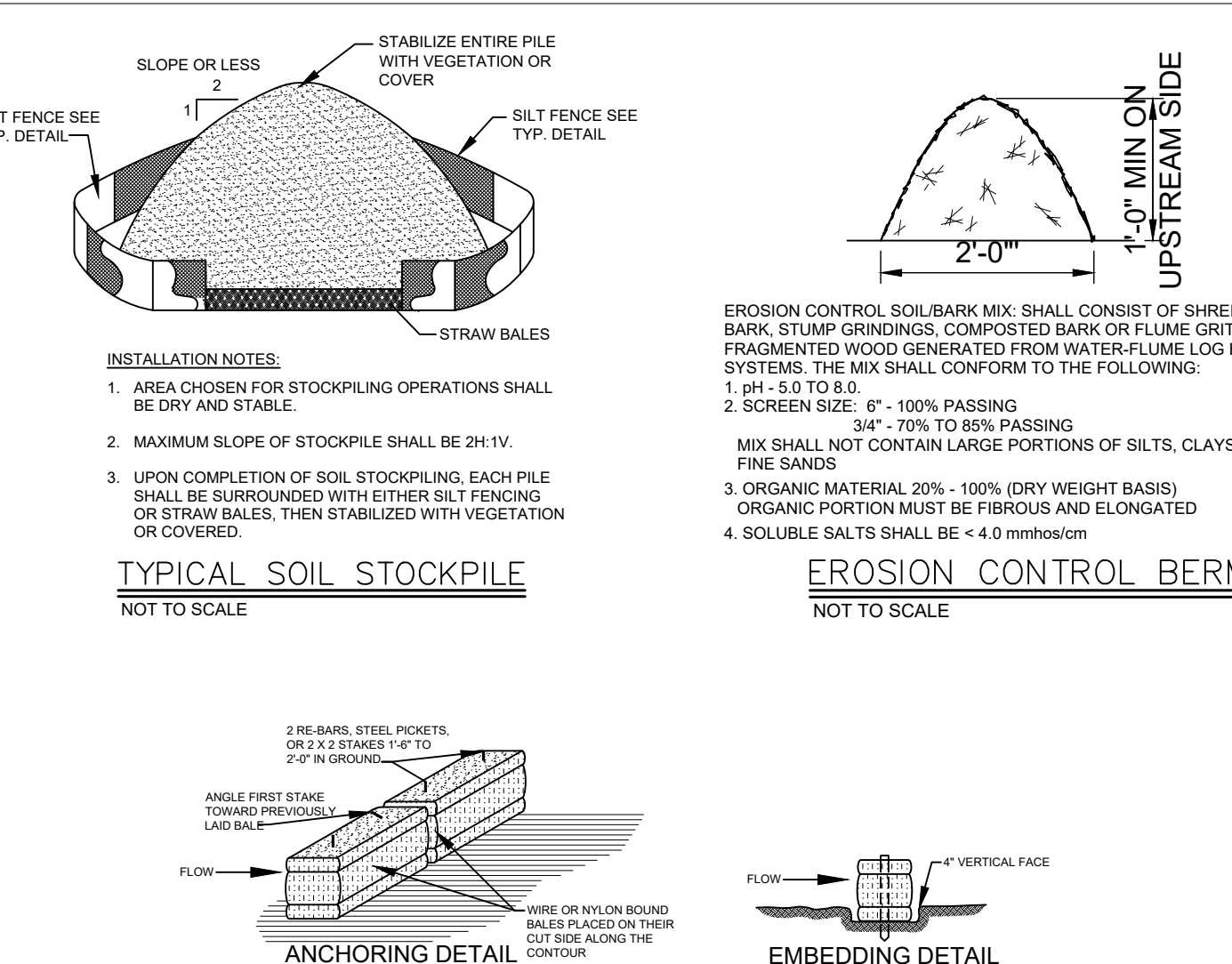
GRASS LINED DITCH
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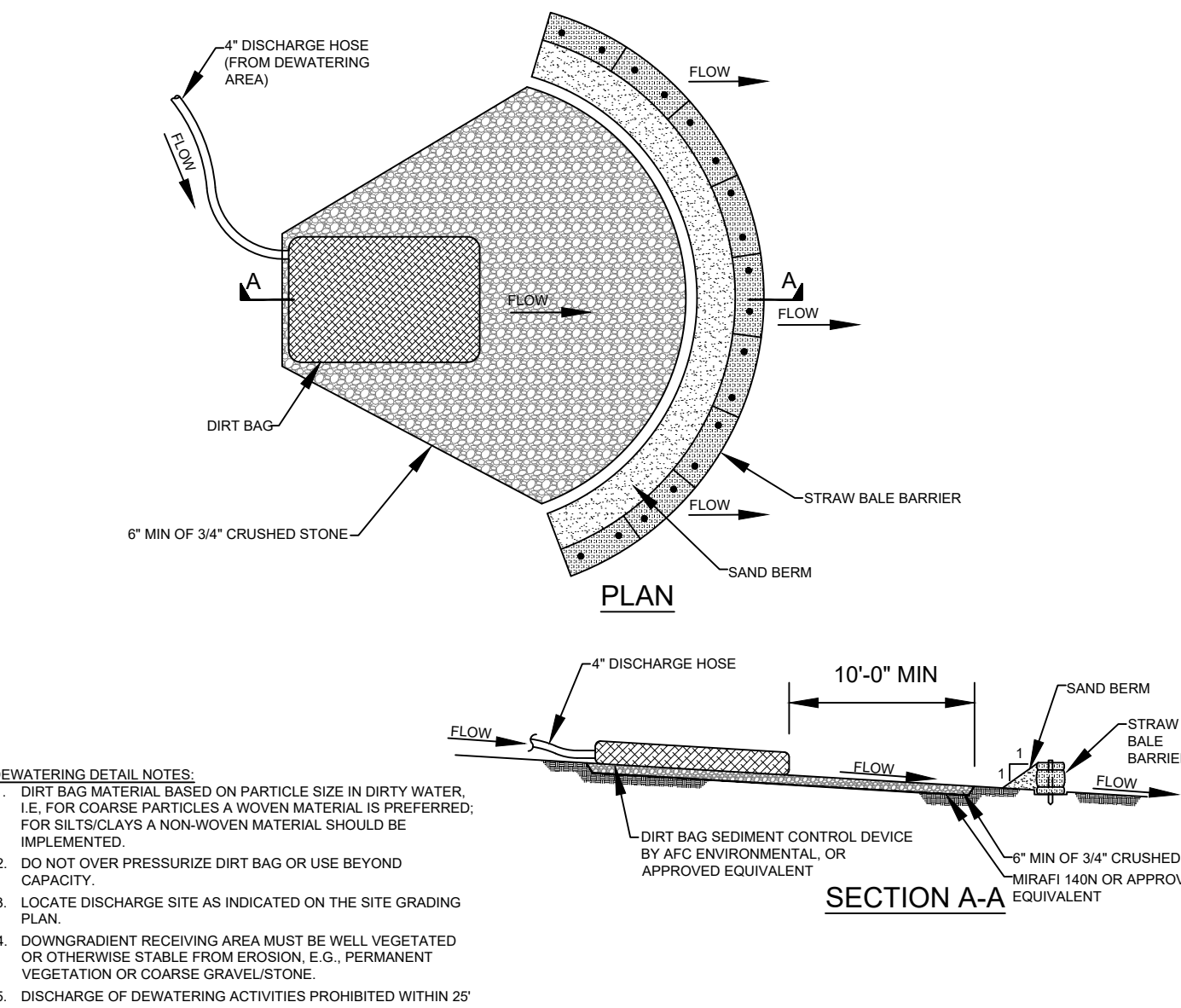
STORM PIPE TRENCH DETAIL
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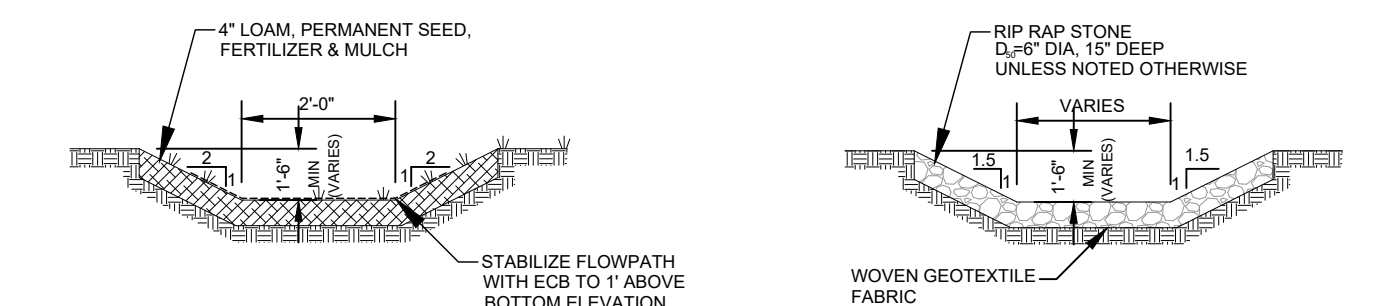
SILT FENCE DETAILS
NOT TO SCALE



STRAW BALE BARRIER
NOT TO SCALE



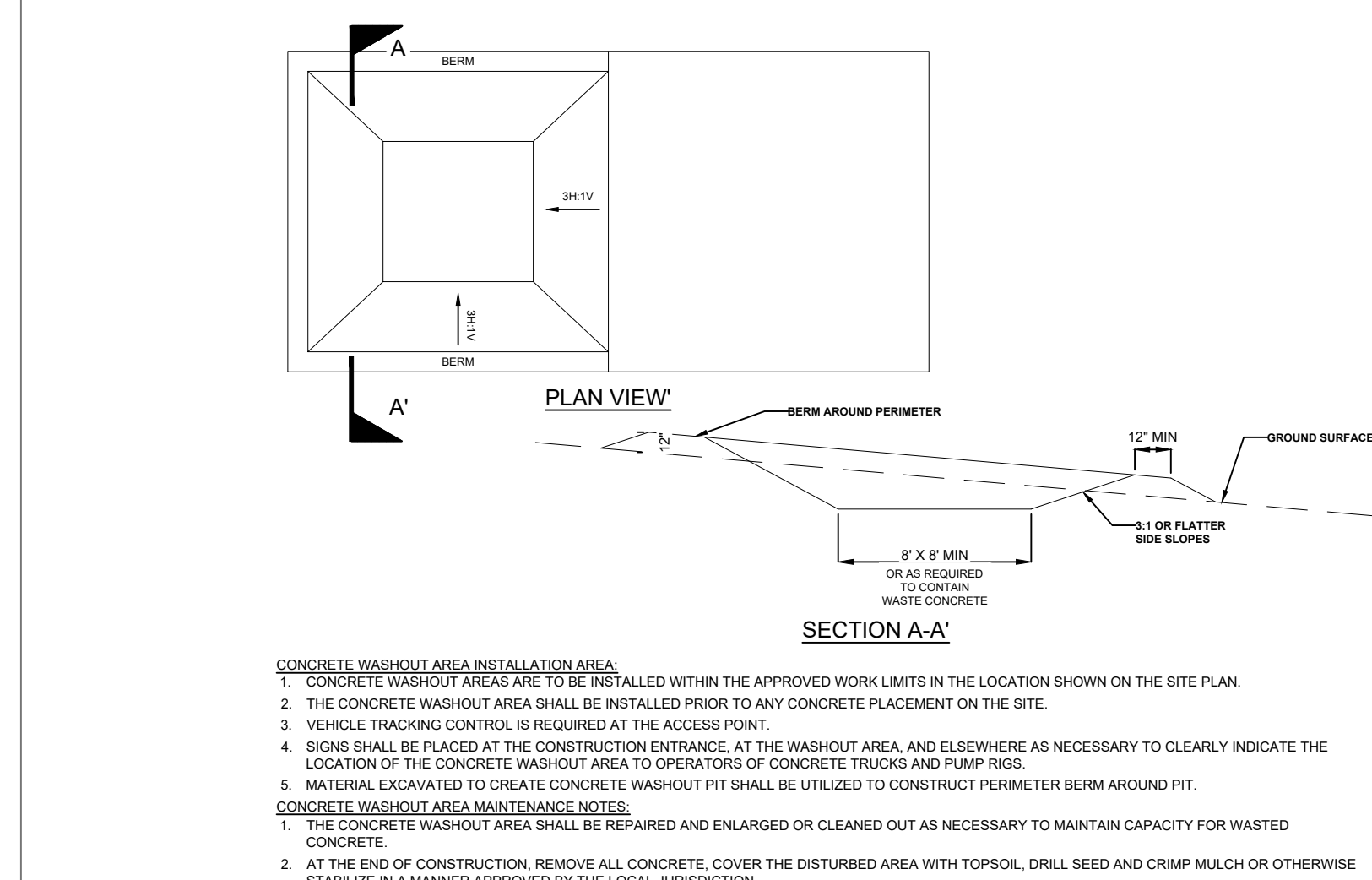
EXCAVATION DEWATERING DETAIL
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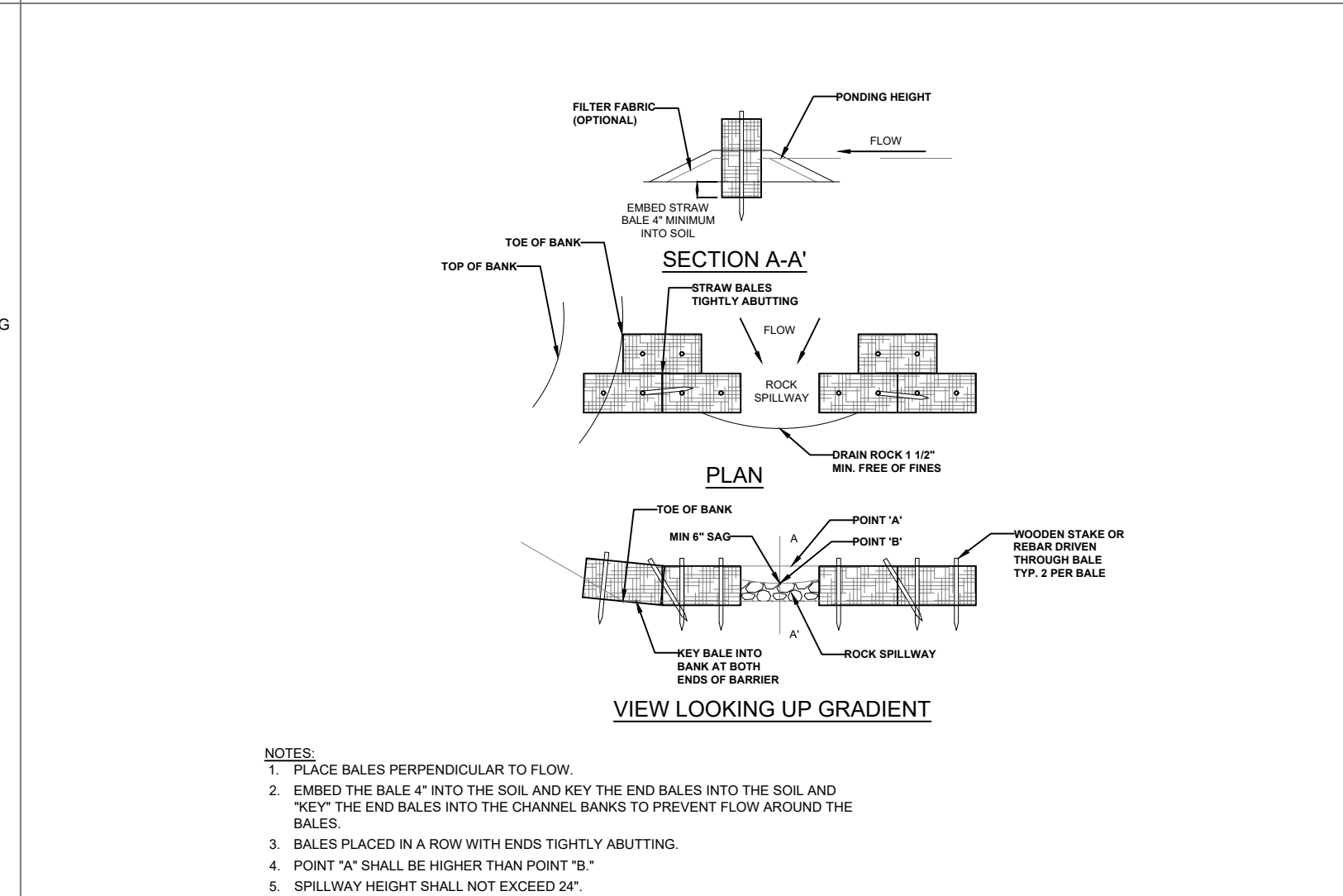
VEGETATED SWALE DETAIL
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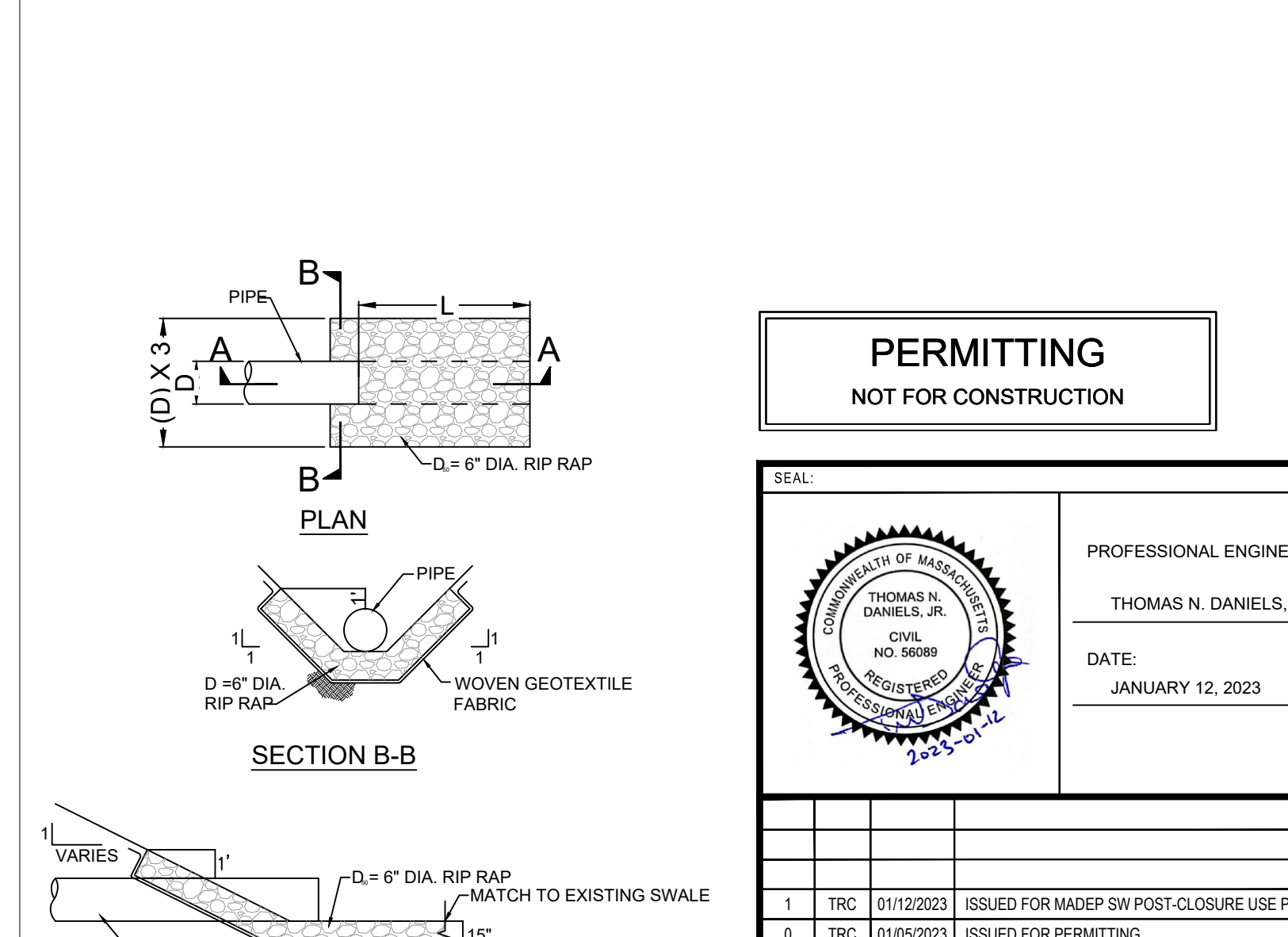
RIP RAP SWALE DETAIL
NOT TO SCALE



CONCRETE WASHOUT AREA
NOT TO SCALE



SEMI-PERMEABLE SEDIMENT BARRIER
NOT TO SCALE



CULVERT ID	CULVERT DIA (D)	LENGTH (L)
SD-1	18"	12'
SD-2	18"	15'
SD-3	2 X 18"	21'

NOTES:
1. EXISTING RIP RAP SWALE SHALL BE IMPROVED ACCORDING TO THIS DETAIL FOR MINIMUM LENGTH SPECIFIED ABOVE AT CULVERT OUTLETS.

INLET/OUTLET PROTECTION DETAIL
NOT TO SCALE

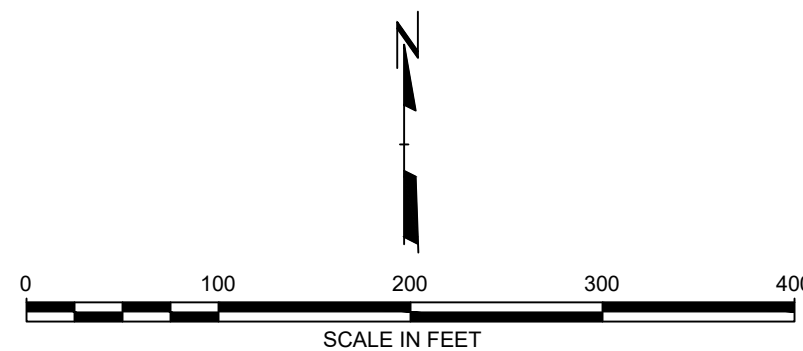
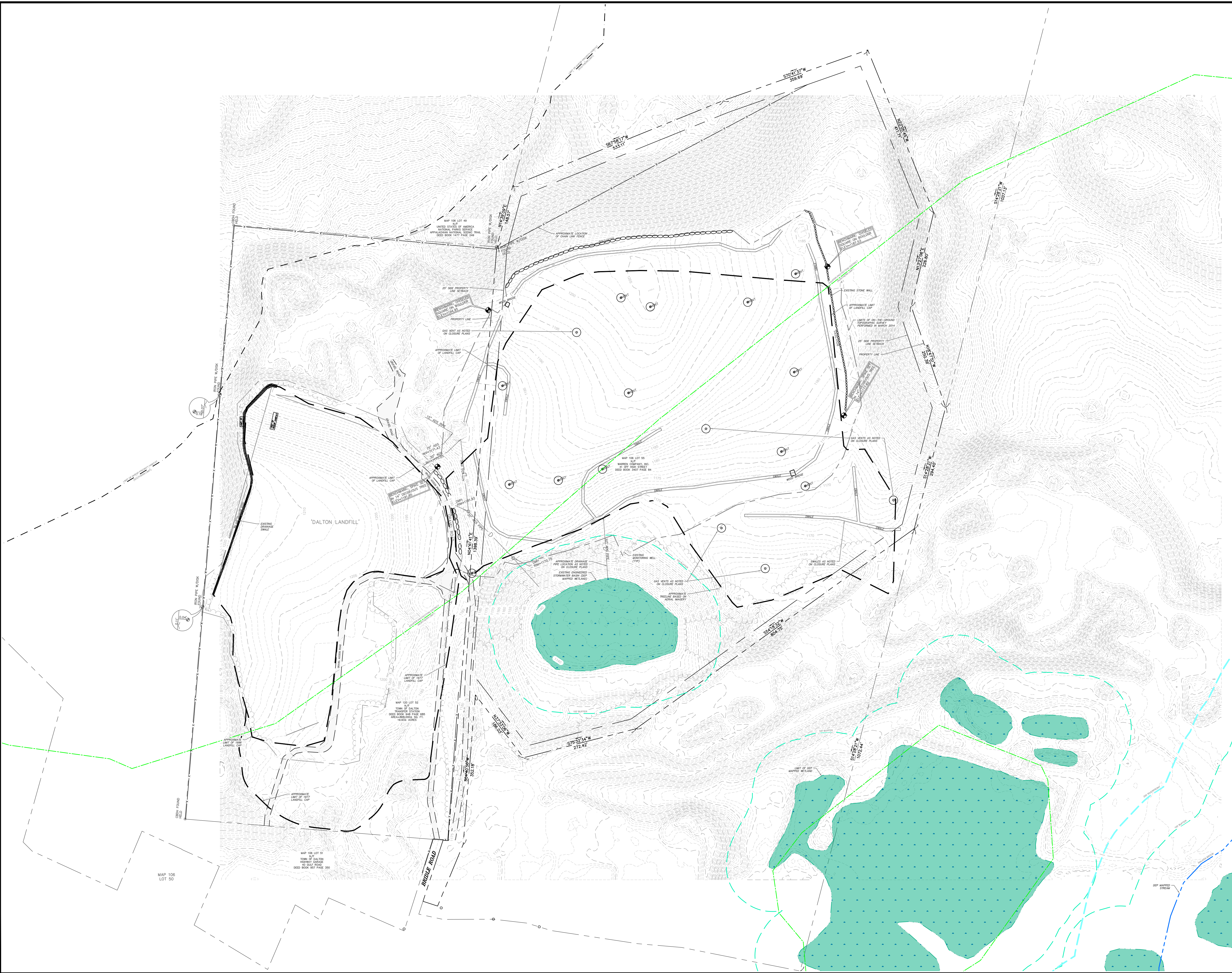
PERMITTING
NOT FOR CONSTRUCTION

SEAL:	PROFESSIONAL ENGINEER:
	THOMAS N. DANIELS, JR.
PROJECT:	DATE:
CITIZENS ENERGY CORP WARREN FARMS SOLAR LLC PROPOSED 2.66 MW-AC SOLAR ARRAY & BESS PROJECT DALTON, BERKSHIRE COUNTY, MASSACHUSETTS	JANUARY 12, 2023
TITLE:	REVISION
EROSION CONTROL NOTES & DETAILS	APPD.
DRAWN BY:	TRC
CHECKED BY:	PROJ. NO. 421646
APPROVED BY:	TND
DATE:	JANUARY 2023
FILE NO.:	421646 - G SHEETS.dwg



650 Suffolk Street
Suite 200
Lowell, MA 01854
Phone: 978.970.5600

2426 - USER: daniel - ATTACHED: RES - ATTACHED: IMAGES - DigSafe - 1/13/2023 11:23:12
DRAWING NAME: \\augusta-tp1\Environmental\RMD\ENV RMD Projects\Citizens Energy Corp\421646-Warren Farms Solar-Dalton MA\10-DWG\421646 - EXISTING.dwg --- PLOT DATE: January 13, 2023 - 8:37AM --- LAYOUT: C1.00



PERMITTING
NOT FOR CONSTRUCTION

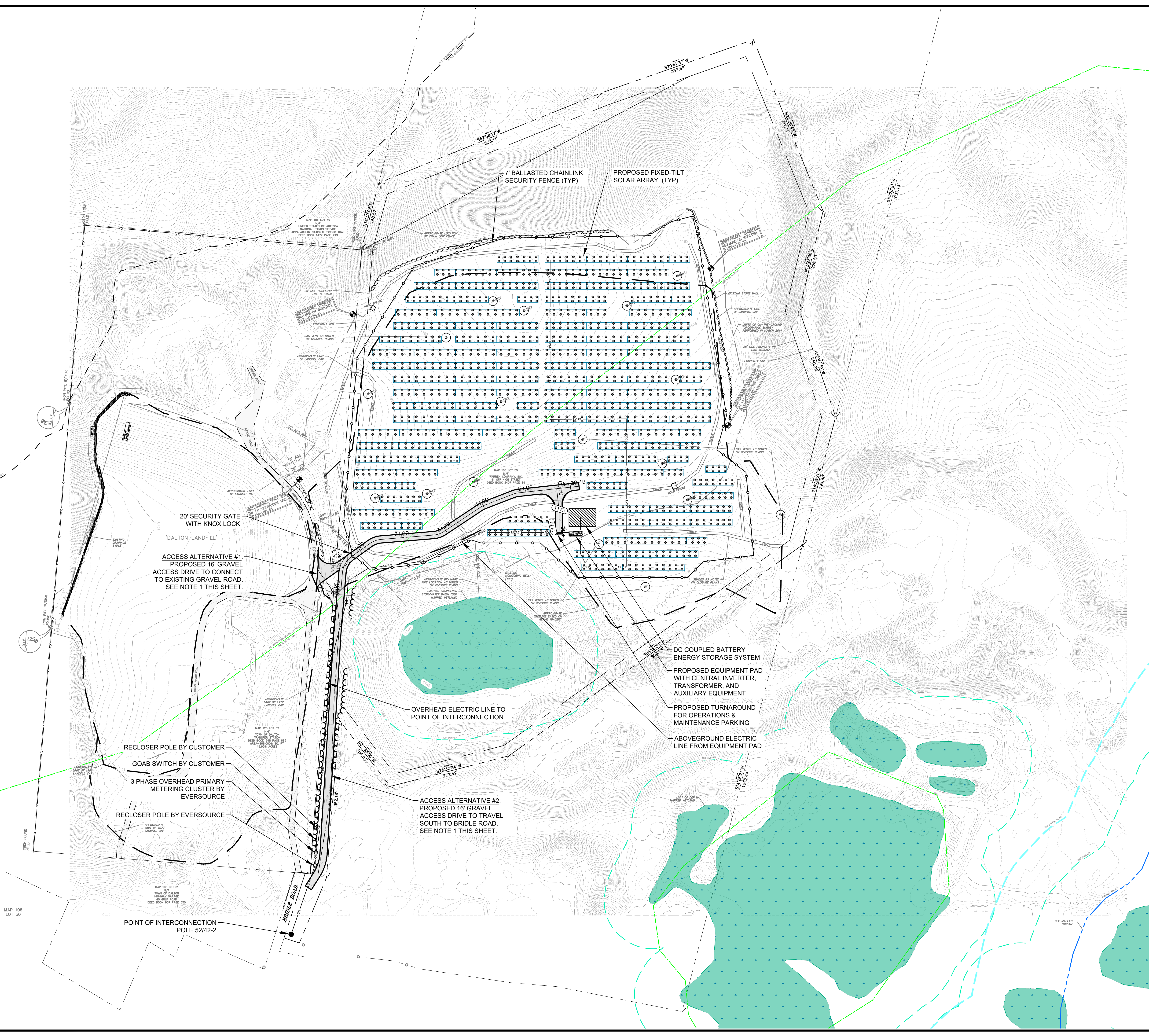


SEAL:		PROFESSIONAL ENGINEER:																	
		THOMAS N. DANIELS, JR.																	
		DATE:																	
		JANUARY 12, 2023																	
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0	TRC	01/05/2023	ISSUED FOR PERMITTING																
NO.	BY	DATE	REVISION																
PROJECT: CITIZENS ENERGY CORP WARREN FARMS SOLAR LLC PROPOSED 2.66 MW-AC SOLAR ARRAY & BESS PROJECT DALTON, BERKSHIRE COUNTY, MASSACHUSETTS																			
TITLE: EXISTING CONDITIONS PLAN																			
DRAWN BY: TRC		PROJ. NO.: 421646																	
CHECKED BY: TND																			
APPROVED BY: TND		C1.00																	
DATE: JANUARY 2023																			
		650 Suffolk Street Suite 200 Lowell, MA 01854 Phone: 978.970.5800																	
FILE NO:		421646 - EXISTING.dwg																	



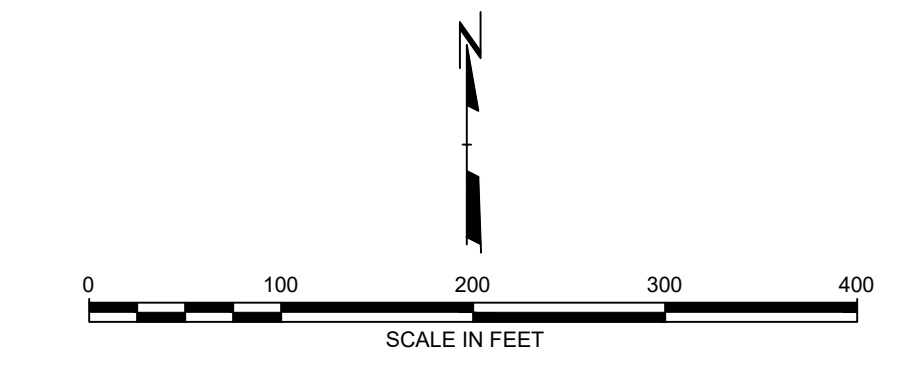
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 2025-01-12			PROFESSIONAL ENGINEER: THOMAS N. DANIELS, JR.		
			DATE: JANUARY 12, 2023		
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0	TRC	01/05/2023	ISSUED FOR PERMITTING		TND
NO.	BY	DATE	REVISION		APP'D.
PROJECT:					
CITIZENS ENERGY CORP WARREN FARMS SOLAR LLC PROPOSED 2.66 MW-A/C SOLAR ARRAY & BESS PROJECT DALTON, BERKSHIRE COUNTY, MASSACHUSETTS					
TITLE:					
SITE PREPARATION PLAN - NORTH					
PERMITTING					
DRAWN BY:		TRC	PRGJ. NO.:		421646
CHECKED BY:		TND			
APPROVED BY:		TND	C1.02		
DATE:		JANUARY 2023			
			650 Suffolk Street Suite 200 Lowell, MA 01854 Phone: 978.970.5600		
FILE NO.:			421646 - EXISTING.dwg		

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DRAWING NAME: \augusta-tp\Environmental\RD\ENY RMD Projects\Citizens Energy Corp\421646-Warren Farms Solar-Dalton MA\10-DWG 421646 - BASE.dwg



NOTES

1. ONLY ONE ACCESS ROUTE SHALL BE CONSTRUCTED, EITHER ACCESS ALTERNATIVE #1 OR ACCESS ALTERNATIVE #2. ISSUED FOR CONSTRUCTION DRAWINGS WILL SHOW THE PROPOSED ACCESS ROUTE PER FINALIZED ACCESS EASEMENT AGREEMENT. SITE GRADING & DRAINAGE PLAN SHALL BE UPDATED AS NEEDED.



PERMITTING
NOT FOR CONSTRUCTION

		PROFESSIONAL ENGINEER: THOMAS N. DANIELS, JR. DATE: JANUARY 12, 2023	
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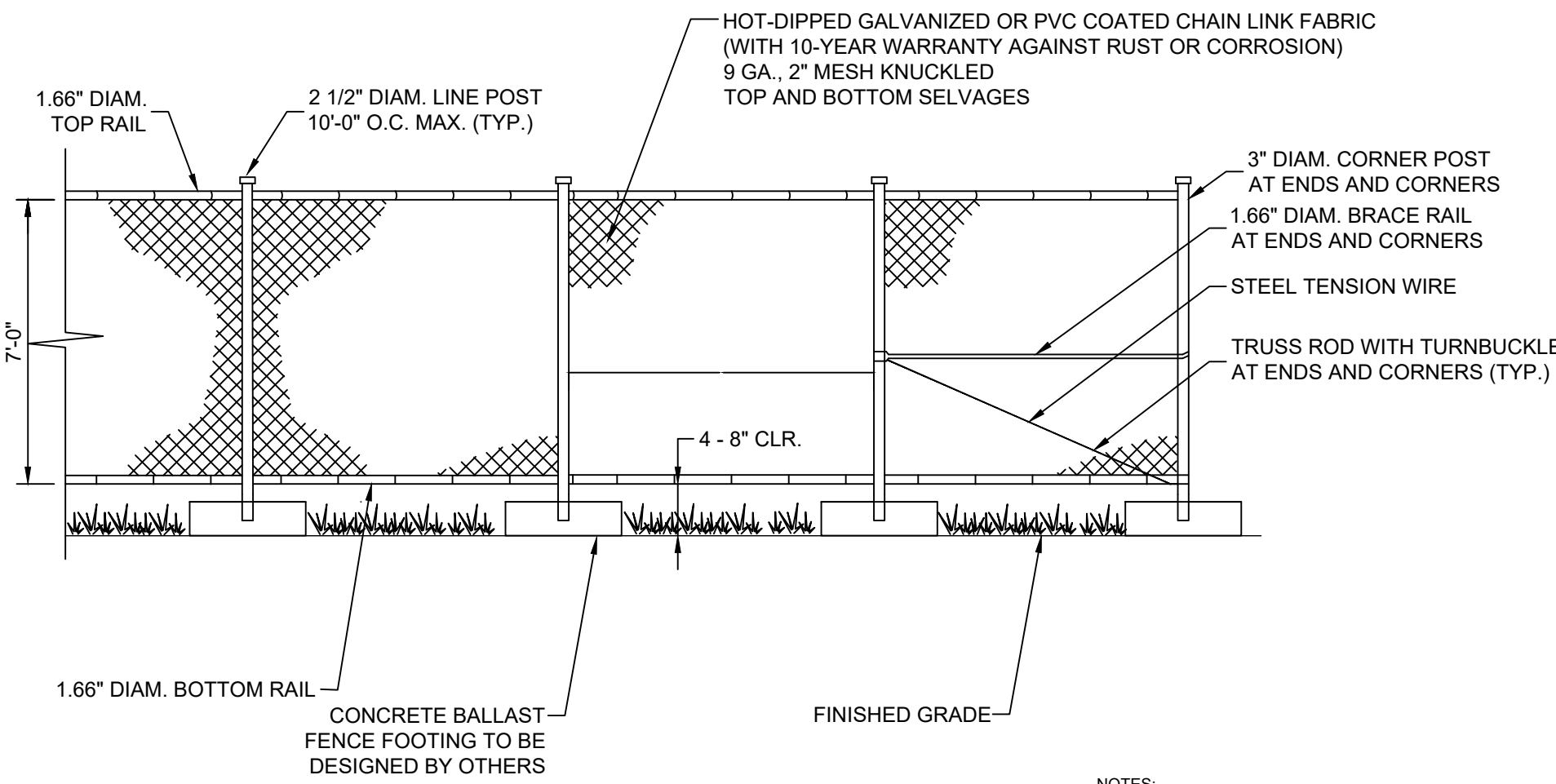
NO.	BY	DATE	REVISION	APPD.
1	TRC	01/12/2023	ISSUED FOR MADEP SW POST-CLOSURE USE PERMIT	TND
0	TRC	01/05/2023	ISSUED FOR PERMITTING	TND

PROJECT: CITIZENS ENERGY CORP
WARREN FARMS SOLAR LLC
PROPOSED 2.66 MW-AC SOLAR ARRAY & BESS PROJECT
DALTON, BERKSHIRE COUNTY, MASSACHUSETTS

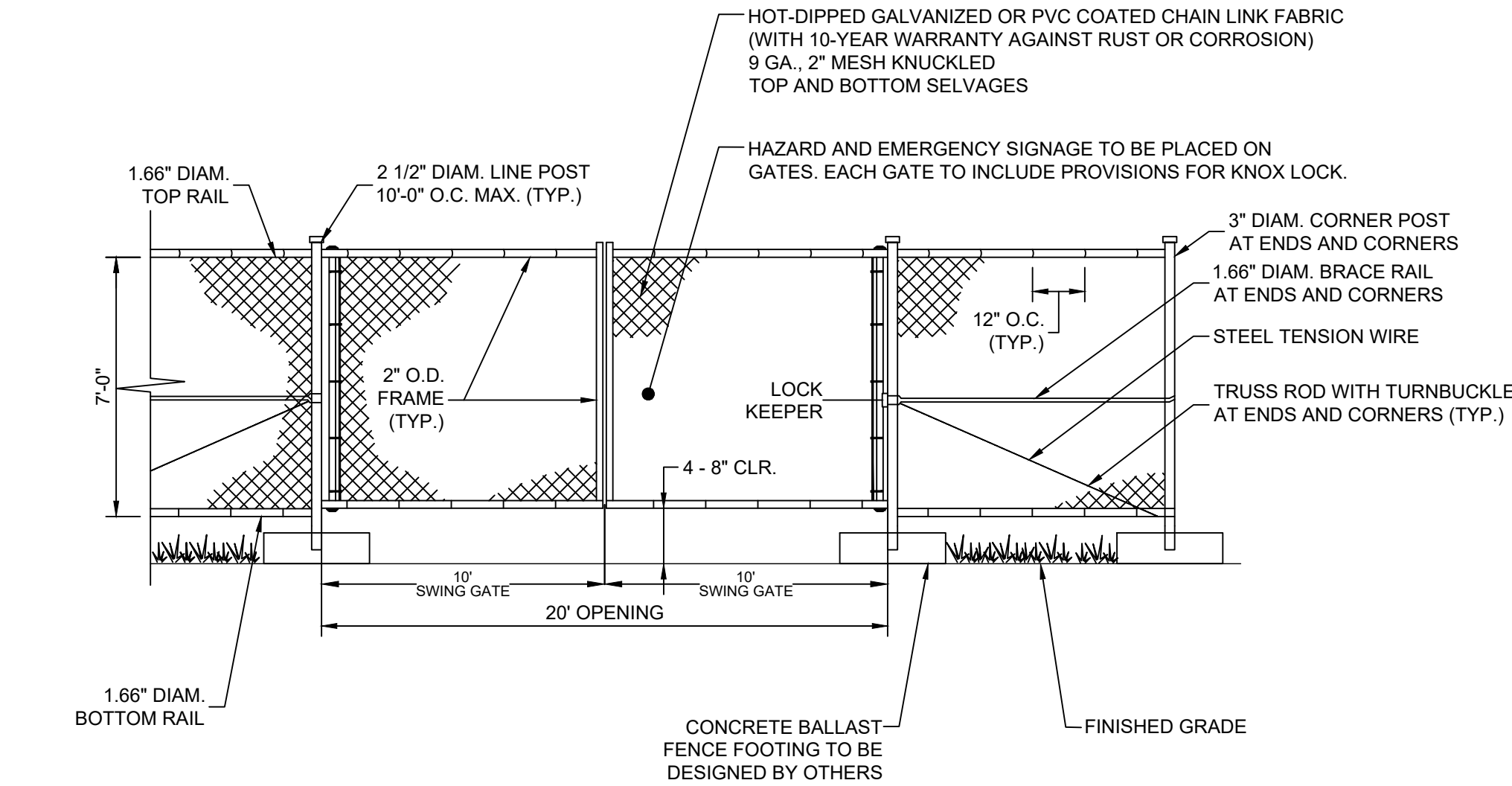
TITLE: OVERALL SITE LAYOUT PLAN	
DRAWN BY: TRC	PROJ. NO.: 421646
CHECKED BY: TND	
APPROVED BY: TND	C2.00
DATE: JANUARY 2023	

650 Suffolk Street
Suite 200
Lowell, MA 01854
Phone: 978.970.5600

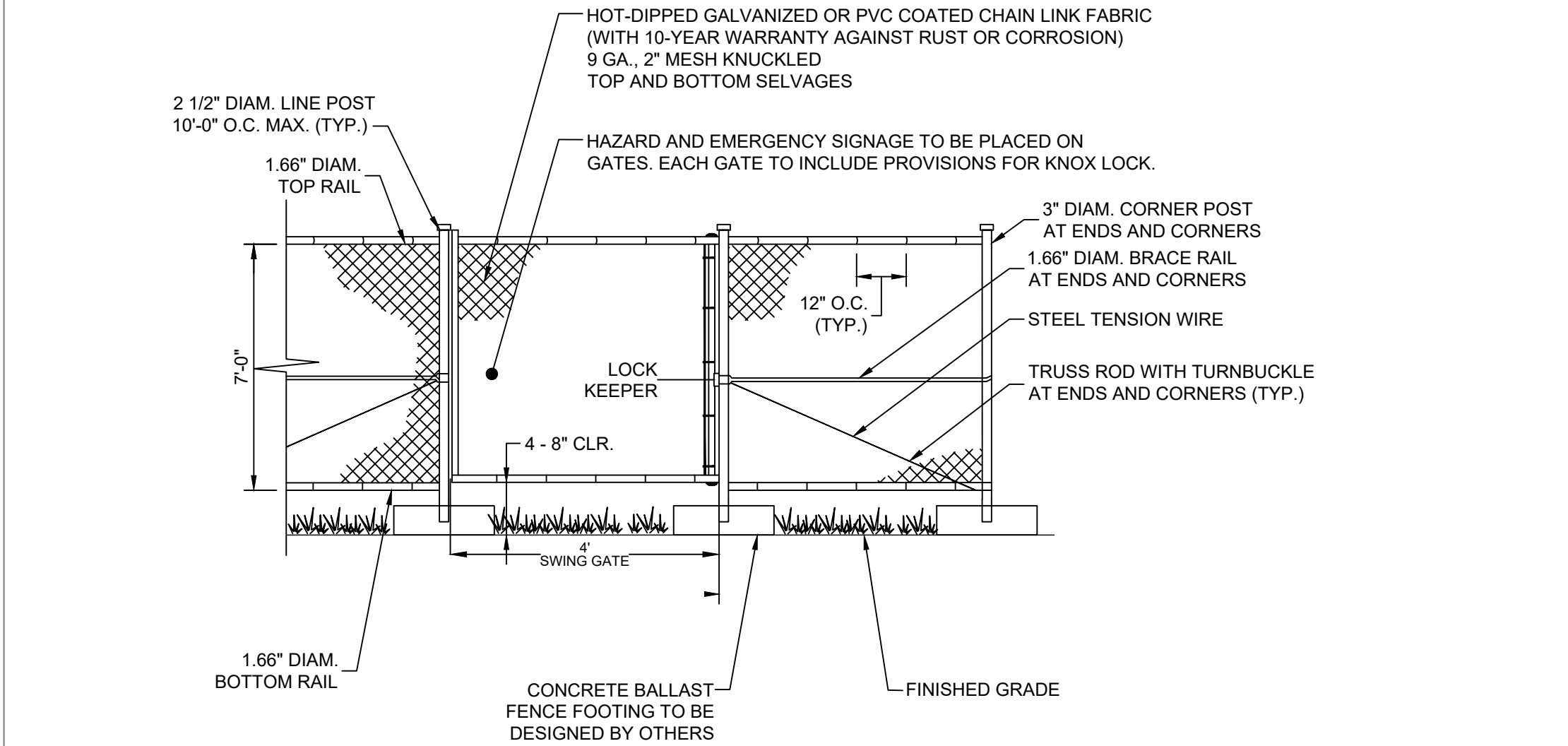
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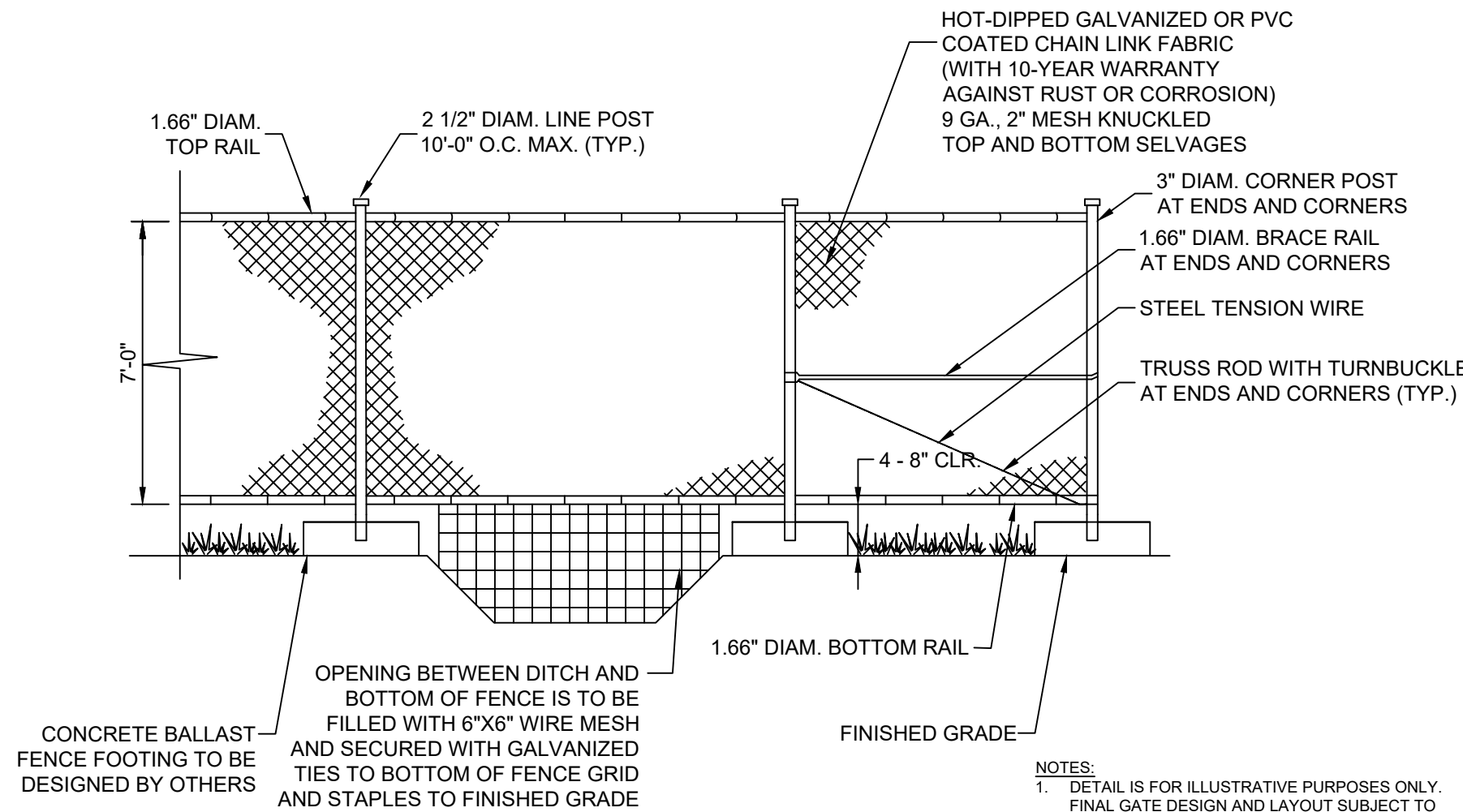
CHAINLINK FENCE DETAIL – BALLAST SUPPORTED
NOT TO SCALE



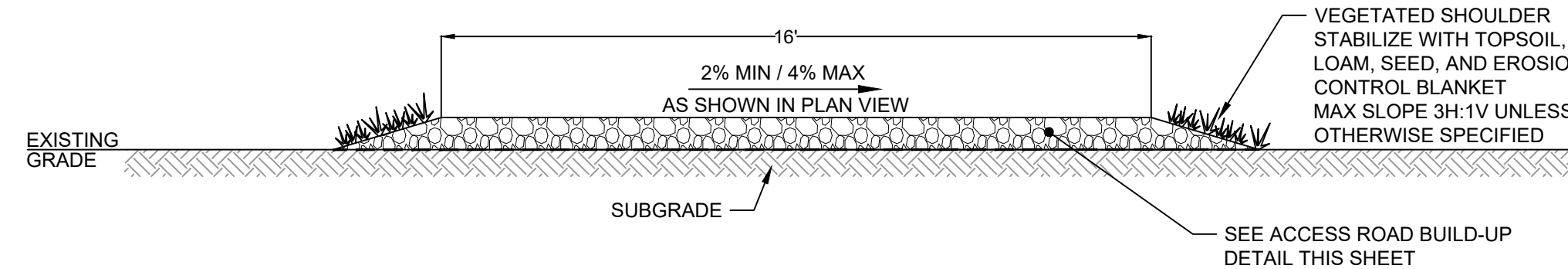
VEHICULAR GATE DETAIL – BALLAST SUPPORTED
NOT TO SCALE



ACCESS GATE DETAIL – BALLAST SUPPORTED
NOT TO SCALE

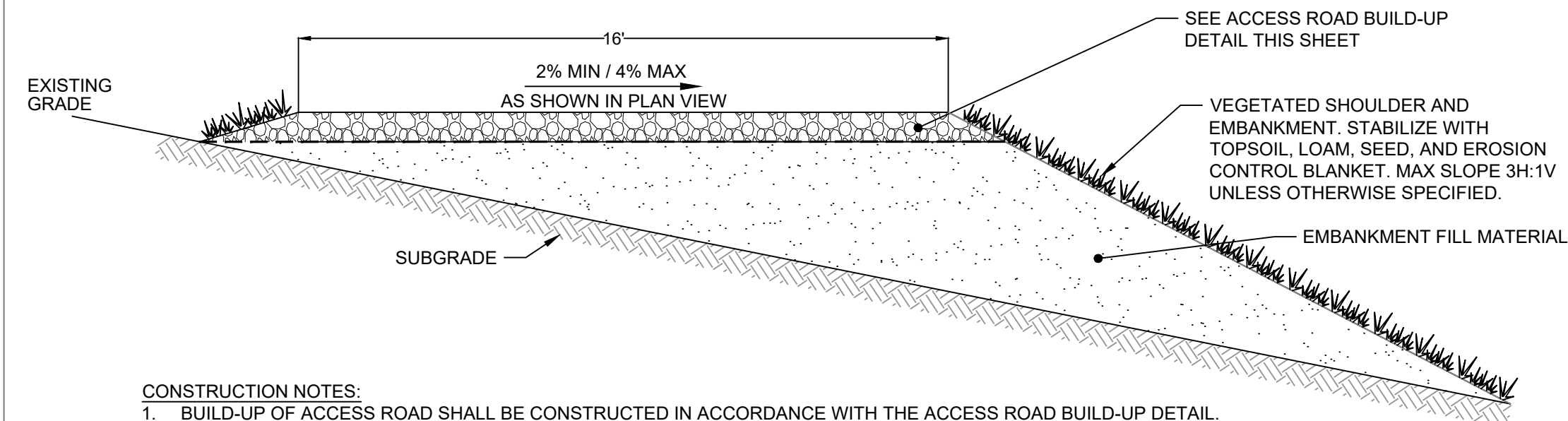


CHAINLINK FENCE AT DITCH DETAIL – BALLAST SUPPORTED
NOT TO SCALE



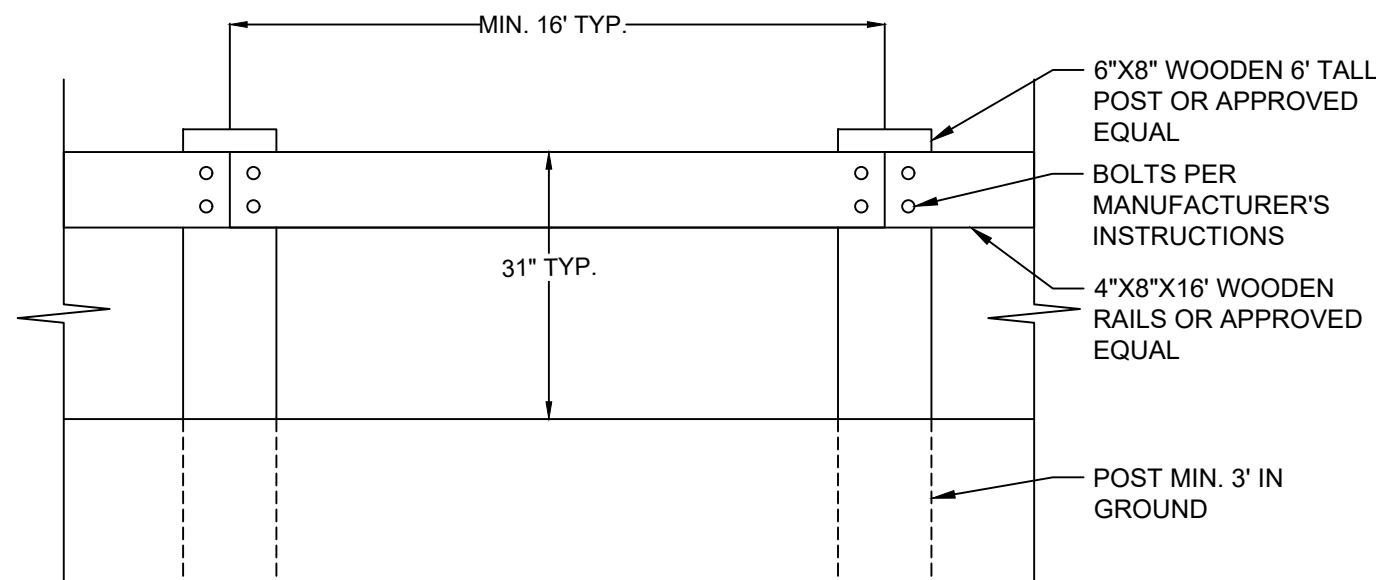
- CONSTRUCTION NOTES:
- BUILD-UP OF ACCESS ROAD SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE ACCESS ROAD BUILD-UP DETAIL.
 - GRAVEL SURFACE SHALL BE SUPERELEVATED AND SLOPED A MINIMUM OF 2% AS INDICATED IN PLAN VIEW. CROSS SLOPE SHALL NOT EXCEED 4%.
 - VEGETATION AND TOPSOIL WITHIN LIMIT OF ROAD FILL SHALL BE REMOVED PRIOR TO PLACEMENT OF ROAD BUILD-UP MATERIALS AND USED IN SUPPORT OF STABILIZING ROADWAY SHOULDERS. A MAXIMUM 3-INCH LAYER OF TOPSOIL SHALL BE REMOVED WITHIN LIMITS OF LANDFILL.
 - ROADWAY SHOULDER SHALL BE VEGETATED AND PREPARED TO DIRECT RUNOFF AS SHEETFLOW TO UNDISTURBED AREAS.

PROPOSED ACCESS ROAD DETAIL
NOT TO SCALE



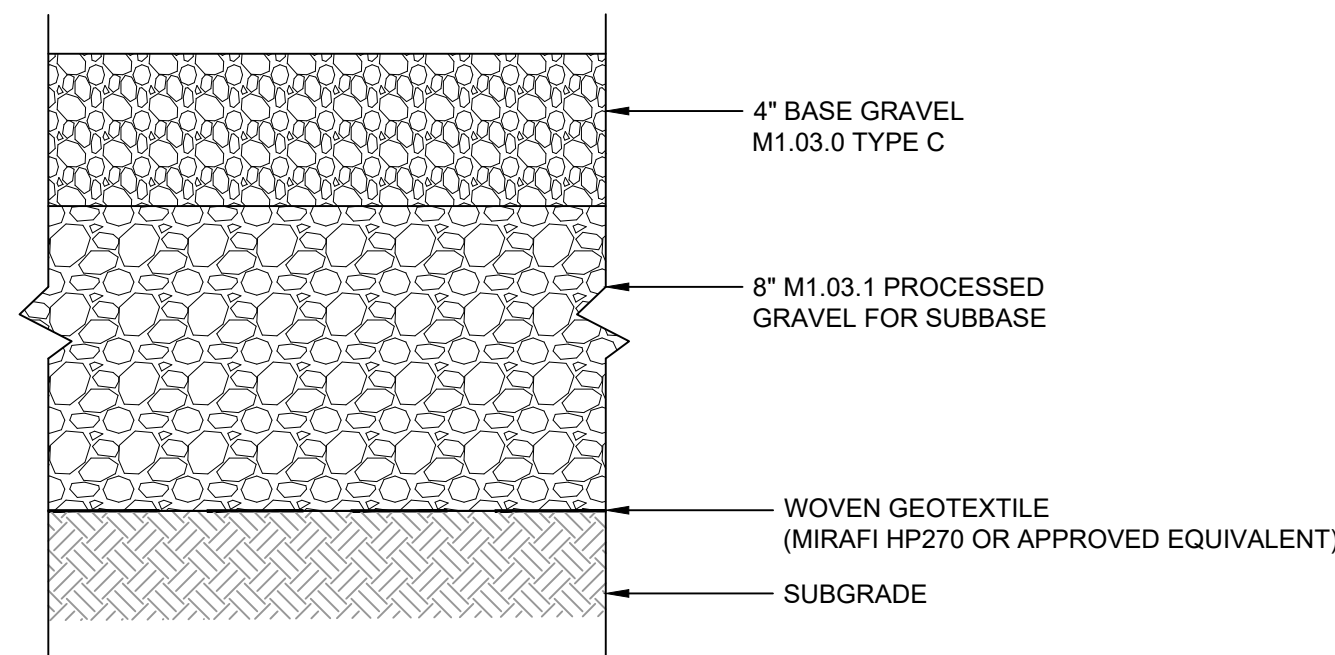
- CONSTRUCTION NOTES:
- BUILD-UP OF ACCESS ROAD SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE ACCESS ROAD BUILD-UP DETAIL.
 - GRAVEL SURFACE SHALL BE SUPERELEVATED AND SLOPED A MINIMUM OF 2% AS INDICATED IN PLAN VIEW. CROSS SLOPE SHALL NOT EXCEED 4%.
 - TOPSOIL WITHIN LIMIT OF ROAD FILL SHALL BE REMOVED PRIOR TO PLACEMENT OF ROAD BUILD-UP MATERIALS AND USED IN SUPPORT OF STABILIZING ROADWAY SHOULDERS. A MAXIMUM 3-INCH LAYER OF TOPSOIL SHALL BE REMOVED WITHIN LIMITS OF LANDFILL.
 - ROADWAY SHOULDER SHALL BE VEGETATED AND PREPARED TO DIRECT RUNOFF AS SHEETFLOW TO UNDISTURBED AREAS.
 - AT LOCATIONS WHERE THE FINAL GRADE OF THE ACCESS ROAD IS GREATER THAN 12" ABOVE THE EXISTING GRADE, ADDITIONAL FILL MATERIAL WILL BE NEEDED BELOW THE ACCESS ROAD BUILD-UP MATERIALS. THE MAXIMUM EMBANKMENT SLOPE SHALL BE 3H:1V UNLESS OTHERWISE SPECIFIED. A GEOTECHNICAL ENGINEER SHALL ASSESS AND FINALIZE EMBANKMENT DESIGN, INCLUDING FILL MATERIAL AND INSTALLATION SPECIFICATIONS, PRIOR TO CONSTRUCTION.

PROPOSED ACCESS ROAD WITH EMBANKMENT DETAIL
NOT TO SCALE



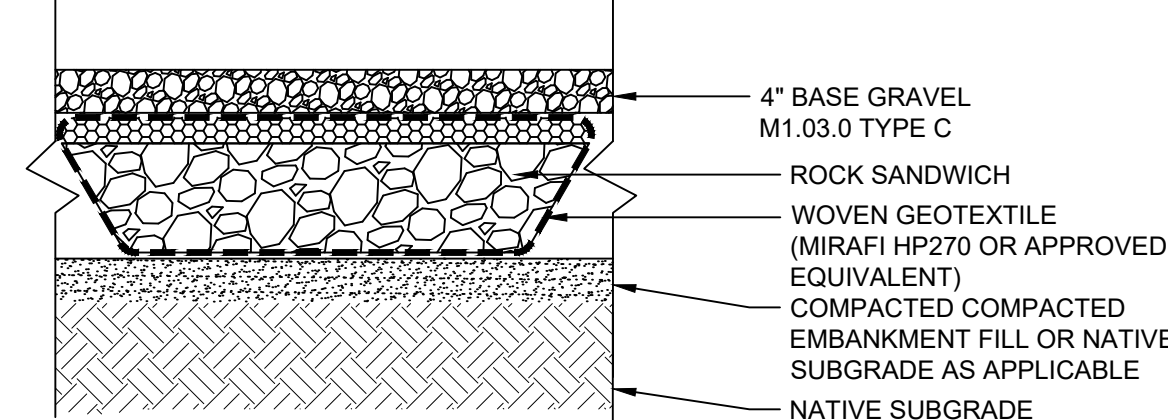
- CONSTRUCTION NOTES:
- GUARDRAIL LAYOUT AS SHOWN IN PLANS. GUARDRAIL TO BE SET BACK FROM EDGE OF ROAD A MINIMUM OF 1'.
 - GUARDRAIL POSTS SHALL BE OFFSET FROM CULVERTS A MINIMUM OF 1' AND SHALL NOT PENETRATE THE UNDERLYING LANDFILL COVER.
 - DETAIL IS FOR ILLUSTRATIVE PURPOSES ONLY. FINAL DESIGN AND LAYOUT SUBJECT TO DETAILED ENGINEER, AHJ APPROVAL, AND CONTRACTOR SUBMITTAL.

GUARDRAIL DETAIL
NOT TO SCALE



- CONSTRUCTION NOTES:
- BASE GRAVEL AND GRAVEL SUBBASE SHALL BE M1.03 AGGREGATE BACKFILL. AGGREGATE SHALL BE DURABLE CRUSHED ROCK CONSISTING OF THE ANGULAR FRAGMENTS OBTAINED BY BREAKING AND CRUSHING SOLID OR SHATTERED NATURAL ROCK, AND FREE FROM A DETRIMENTAL QUANTITY OF THIN, FLAT, ELONGATED, OR OTHER OBJECTIONABLE PIECES.
 - BASE GRAVEL AND GRAVEL SUBBASE SHALL BE COMPACTED TO 95% OF ASTM D1557 AND PLACED IN MAXIMUM COMPACTED LIFTS OF 8-INCHES.
 - VEGETATION AND TOPSOIL WITHIN LIMIT OF ROAD FILL SHALL BE STRIPPED PRIOR TO PLACEMENT OF SUBGRADE/EMBANKMENT FILL OR GEOTEXTILE AS APPLICABLE. A MAXIMUM 3-INCH LAYER OF TOPSOIL SHALL BE REMOVED WITHIN LIMITS OF LANDFILL.
 - EMBANKMENT FILL MATERIAL REQUIRED TO ACHIEVE DESIGN GRADES, BEYOND DEPTH OF BASE GRAVEL AND GRAVEL SUBBASE, SHALL CONFORM TO THE REQUIREMENTS OF M1.02.0: SPECIAL BORROW MATERIAL EXCEPT THAT IT SHALL CONTAIN NO STONE LARGER THAN 6 INCHES.
 - EMBANKMENT FILL MATERIAL SHALL BE COMPACTED TO 95% OF ASTM D1557 IN LAYERS NOT EXCEEDING 8 INCHES IN DEPTH, COMPACTED MEASURE. SUBGRADE SHALL BE COMPACTED TO 95% OF ASTM D1557 TO A DEPTH OF 12-INCHES.

ACCESS ROAD BUILD-UP
NOT TO SCALE

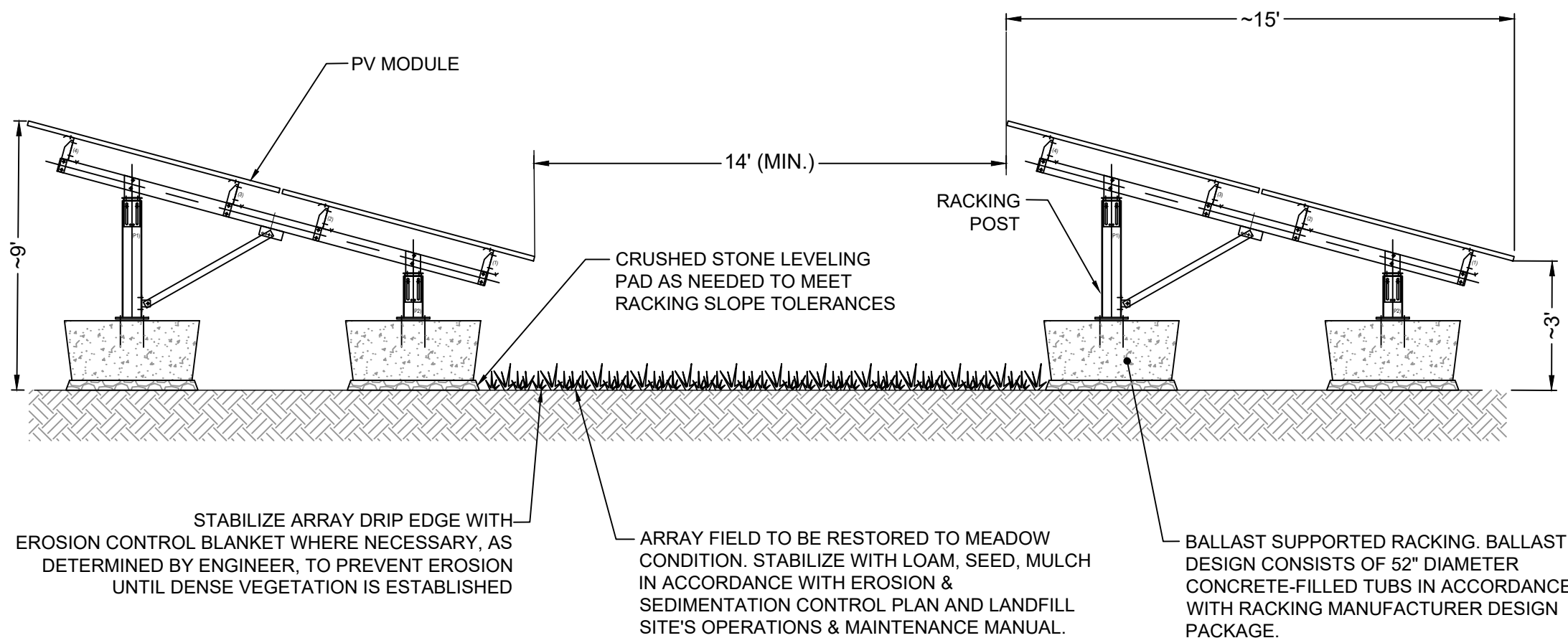


- CONSTRUCTION NOTES:
- ROCK SANDWICH SHALL BE COMPRISED OF 8-INCHES OF 3-6" DIAMETER STONES. SMALLER STONES WITH DIAMETER OF 3/4" - 1-1/2" SHALL BE PLACED ALONG THE UPPER SURFACE TO REMOVE IRREGULARITIES AND PROTECT GEOTEXTILE LAYER.
 - PERMEABLE ROAD BASE MAY BE CONSTRUCTED IN AREAS ADJACENT TO WETLANDS, HYDRIC SOILS, WHERE THE GROUNDWATER TABLE IS INTERCEPTED BY A ROAD CUT, OR TO STRENGTHEN THE ROAD SURFACE OVERLYING AREAS OF SOFT SOILS. AT A MINIMUM, PERMEABLE ROADBASE SHALL BE CONSTRUCTED IN THE SECTIONS OF ACCESS ROAD IDENTIFIED ON THE SITE GRADING AND DRAINAGE PLAN. ADDITIONAL LOCATIONS MAY BE NECESSARY BASED ON ENCOUNTERED SITE CONDITIONS.

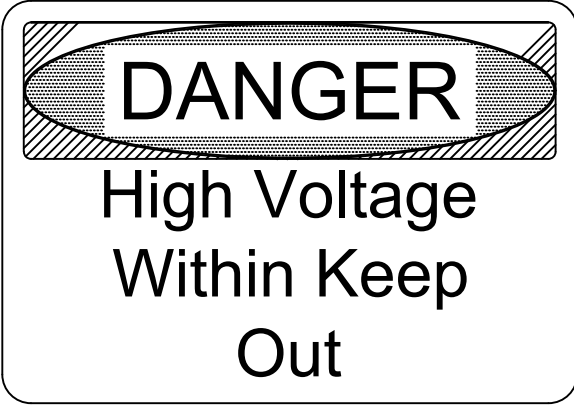
PERMEABLE ROADBASE
NOT TO SCALE

PERMITTING
NOT FOR CONSTRUCTION

SEAL:		PROFESSIONAL ENGINEER: THOMAS N. DANIELS, JR. DATE: JANUARY 12, 2023		
1	TRC	01/12/2023	ISSUED FOR MADEP SW POST-CLOSURE USE PERMIT	TND
0	TRC	01/05/2023	ISSUED FOR PERMITTING	TND
NO.	BY	DATE	REVISION	APPD.
PROJECT: CITIZENS ENERGY CORP WARREN FARMS SOLAR LLC PROPOSED 2.66 MW-AC SOLAR ARRAY & BESS PROJECT DALTON, BERKSHIRE COUNTY, MASSACHUSETTS				
TITLE: CIVIL CONSTRUCTION DETAILS				
DRAWN BY: TRC		PROJ. NO.: 421646		
CHECKED BY: TND				
APPROVED BY: TND		C4.00		
DATE: JANUARY 2023				
		650 Suffolk Street Suite 200 Lowell, MA 01854 Phone: 978.970.5600		
FILE NO:		421646 - DT.dwg		

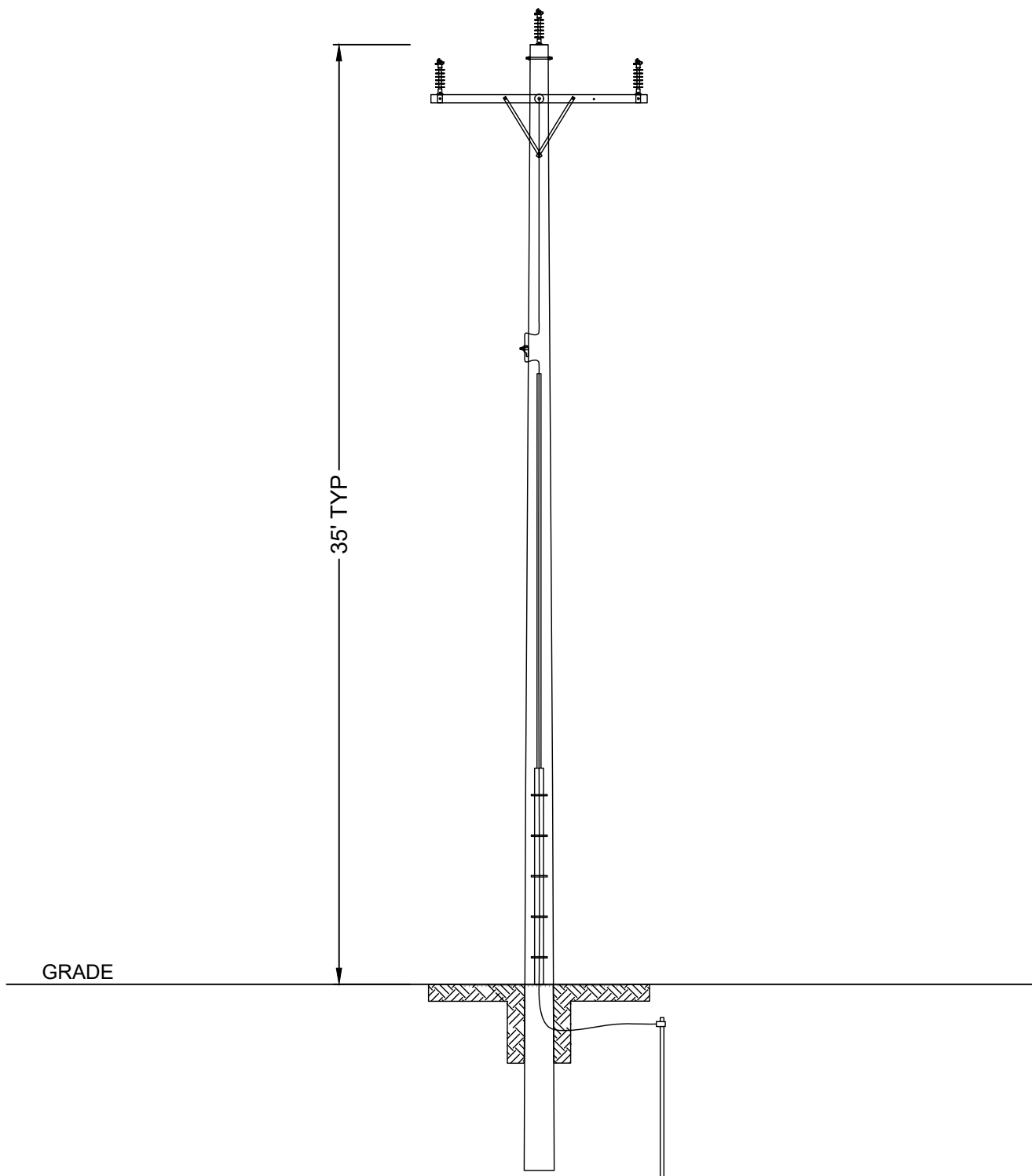


TYPICAL FIXED TILT BALLAST SUPPORTED SOLAR RACKING – SIDE ELEVATION
NOT TO SCALE

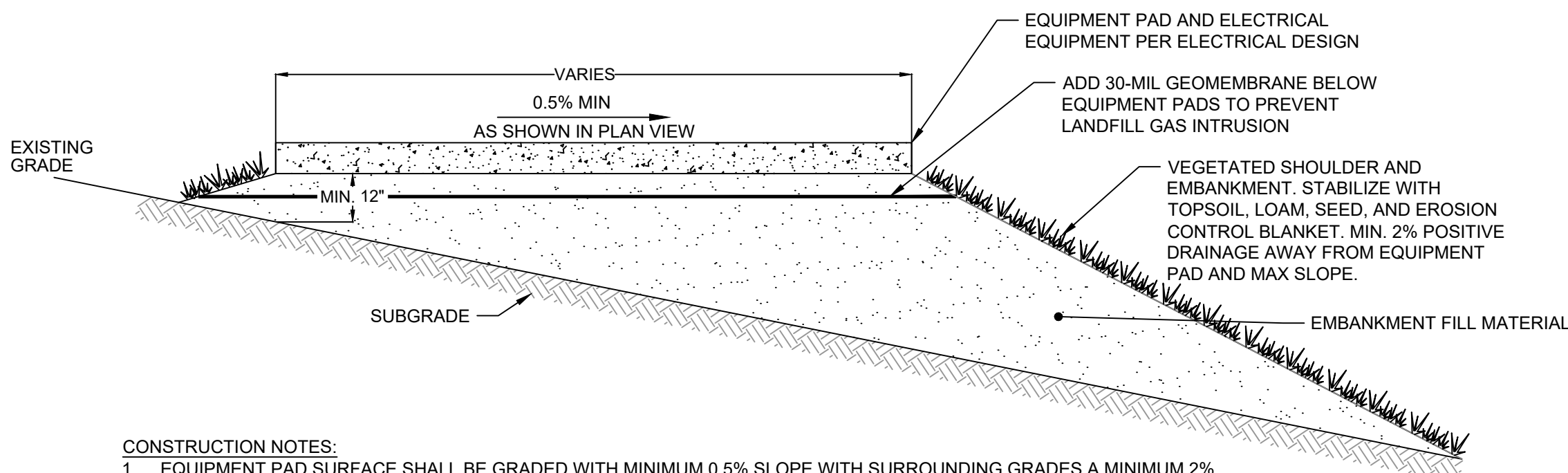


- NOTES
- SIGNS SHALL BE PLACED ON GATES AND ALONG PERIMETER FENCING.
 - SIGNS SHALL CONFORM TO THE 2013 OSHA AND ANSI REQUIREMENTS.
 - SIGNS SHALL BE 20" WIDE BY 14" HIGH.
 - SIGNS SHALL HAVE A MOUNTING HEIGHT OF BETWEEN 45 TO 66 INCHES.
 - SIGN PANELS SHALL BE 10 GAUGE ALUMINUM WITH HIGH VISIBILITY REFLECTIVE SHEETING.
 - SIGNAGE SHALL INCLUDE 24-HR EMERGENCY CONTACT INFORMATION FOR FACILITY OPERATOR.

HAZARD & EMERGENCY SIGNAGE
NOT TO SCALE



TYPICAL UTILITY POLE
NOT TO SCALE



- CONSTRUCTION NOTES:
- EQUIPMENT PAD SURFACE SHALL BE GRADED WITH MINIMUM 0.5% SLOPE WITH SURROUNDING GRADES A MINIMUM 2% SLOPE TO PROVIDE ADEQUATE SURFACE WATER DRAINAGE AWAY FROM EQUIPMENT PAD.
 - TOPSOIL WITHIN LIMIT OF EQUIPMENT PAD FILL SHALL BE REMOVED PRIOR TO PLACEMENT OF FILL MATERIAL AND USED IN SUPPORT OF STABILIZING SHOULDERS/EMBANKMENTS. A MAXIMUM 3-INCH LAYER OF TOPSOIL SHALL BE REMOVED WITHIN LIMITS OF LANDFILL (FOR EQUIPMENT PAD EMBANKMENT CONSTRUCTION AND WHERE ELECTRICAL EQUIPMENT GROUNDING WILL OCCUR). OTHERWISE, THERE WILL BE NO EXCAVATION OF LANDFILL COVER MATERIAL FOR ELECTRICAL EQUIPMENT INSTALLATION.
 - SHOULDER SHALL BE VEGETATED AND PREPARED TO DIRECT RUNOFF AS SHEETFLOW TO UNDISTURBED AREAS.
 - FOUNDATION DESIGN AND SUBGRADE BELOW CONCRETE PAD PER ELECTRICAL DESIGN TO BE FINALIZED PRIOR TO CONSTRUCTION.

TYPICAL EQUIPMENT PAD DETAIL
NOT TO SCALE

PERMITTING
NOT FOR CONSTRUCTION



SEAL:		PROFESSIONAL ENGINEER:																
		THOMAS N. DANIELS, JR.																
DATE:		JANUARY 12, 2023																
<table><tr><td>1</td><td>TRC</td><td>01/12/2023</td><td>ISSUED FOR MADEP SW POST-CLOSURE USE PERMIT</td><td>TND</td></tr><tr><td>0</td><td>TRC</td><td>01/05/2023</td><td>ISSUED FOR PERMITTING</td><td>TND</td></tr><tr><td>NO.</td><td>BY</td><td>DATE</td><td>REVISION</td><td>APPD.</td></tr></table>				1	TRC	01/12/2023	ISSUED FOR MADEP SW POST-CLOSURE USE PERMIT	TND	0	TRC	01/05/2023	ISSUED FOR PERMITTING	TND	NO.	BY	DATE	REVISION	APPD.
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PROJECT: CITIZENS ENERGY CORP WARREN FARMS SOLAR LLC PROPOSED 2.66 MW-AC SOLAR ARRAY & BESS PROJECT DALTON, BERKSHIRE COUNTY, MASSACHUSETTS																		
TITLE: PRELIMINARY ELECTRICAL DETAILS																		
DRAWN BY: TRC		PROJ. NO.: 421646																
CHECKED BY: TND		C5.00																
APPROVED BY: TND		DATE: JANUARY 2023																
		650 Suffolk Street Suite 200 Lowell, MA 01854 Phone: 978.970.5600																
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